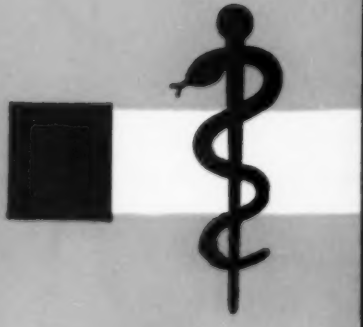
Medical TIMES

THE JOURNAL OF GENERAL PRACTICE



VOL. 83 APRIL 1955 NO. 4

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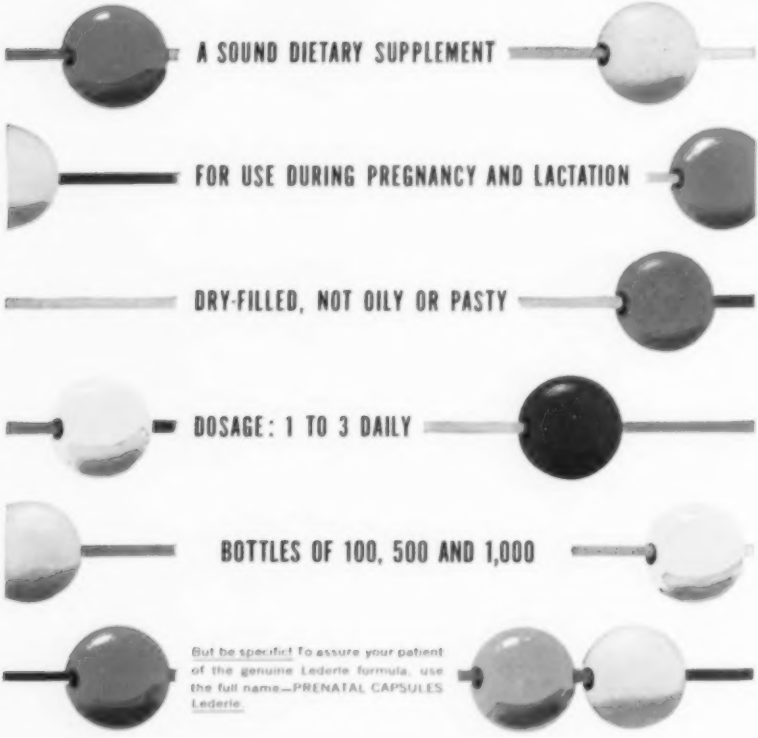

Each capsule contains:

Vitamin A	2000 USP Units	Folic Acid	1 mg.
Vitamin D	400 USP Units	Calcium (in $CaHPO_4$)	250 mg.
Thiamine	2 mg.	Phosphorus (in $CaHPO_4$)	190 mg.
Riboflavin	2 mg.	Dicalcium Phosphate Anhydrous ($CaHPO_4$)	869 mg.
Ascorbic Acid	35 mg.	Iron (in exsiccated $FeSO_4$)	6 mg.
Vitamin B_{12}	1 mcgm.	Ferrous Sulfate exsiccated ($FeSO_4$)	20 mg.
Vitamin K (Menadione)	0.5 mg.	Manganese (in $MnSO_4$)	0.12 mg.
Niacinamide	7 mg.		

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY Pearl River, New York

Lederle

CONTENTS

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For Headache, Neuralgia, Minor Aches and Pains
Give BUFFERIN® because...

1. It gives fast pain relief—acts twice as fast as aspirin.[1]
2. Even large doses seldom cause gastric upsets.[2]

For Arthritis—and Other Rheumatic Disorders
Give BUFFERIN because...

1. It provides effective, better-tolerated relief of pain.
2. There were no gastric upsets with BUFFERIN in 70% of hospitalized arthritic patients who couldn't tolerate aspirin.[3] This is an important finding, for arthritics are 3 to 9 times as susceptible to gastric upsets with straight aspirin as the general population.[3]
3. The antacids in BUFFERIN do not lower the blood salicylate levels as sodium bicarbonate does.[4]

BUFFERIN contains acetylsalicylic acid (5 gr. per tablet), for prompt analgesia, plus magnesium carbonate and aluminum glycinate.

Available—bottles of 12, 36, 60 and 100 tablets.

References: 1. J. Am. Pharm. Assoc., Sc. Ed. 39:21 (Jan.) 1950. 2. Ind. Med. 20:480 (Oct.) 1951. 3. In Press. 4. J.A.M.A. 141:124 (Sept. 10) 1949.

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GIVE BUFFERIN® Acts Twice as Fast as Aspirin Does Not Upset the Stomach

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faster help for your patient

visceral eutonic

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relieves gastroduodenal, biliary pain⇄spasm usually in ten minutes

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unusually well tolerated: free from "antispasmodic" side effects and does not affect gastric and biliary secretion

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Over 96 per cent live delivery in 1200 patients . . . *including 540 habitual aborters.*[1]

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No side effects in pregnant patients . . . *in either low or massive dosage.*[2]

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A Formulation Proved By Extensive Clinical Experience,[1, 2, 3, 4]

— Each **desplex** tablet contains 25 mg. of rapid-acting *ultra*-micronized diethylstilbestrol U.S.P., with protective and effectuating amounts of vitamin B complex and vitamin C.

— For further information and a generous trial supply of **desplex**, write to:

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REFERENCES

1. Peña, E. F.: Med. Times 82:921, 1954; Am. J. Surg. 87:95, 1954
2. Karnaky, K. J.: South. M. J.: 45:1166, 1952
3. Gitman, L. and Koplowitz, A.: N. Y. St. J. Med. 50:2823, 1950
4. Ross, J. W.: J. Nat. M. Assoc. 43:20, 1951; 45:223, 1953

Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

Incorporating the Long Island Medical Journal and Western Medical Times

CONTRIBUTIONS Exclusive Publication: Articles are accepted for publication with the understanding that they are contributed solely to this publication, are of practical value to the general practitioner and do not contain references to drugs, synthetic or otherwise, except under the following conditions: 1. The chemical and not the trade name must be used, provided that no obscurity results and scientific purpose is not badly served. 2. The substance must not stand disapproved in the American Medical Association's annual publication, New and Nonofficial Remedies. When possible, two copies of manuscript should be submitted. Drawings or photographs are especially desired and the publishers will have half tones or line cuts made without expense to the authors. Reprints will be supplied authors below cost.

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from an editorial in the J.A.M.A.
(156:991, Nov. 6, 1954):

Oral broad spectrum antibiotic therapy
may cause infection with Candida albicans

A new concept in antibiotic therapy

antibacterial therapy
plus
antifungal prophylaxis
in one capsule

Each Mysteclin capsule, containing 250 milligrams of tetracycline hydrochloride and 250,000 units of nystatin, costs the patient only a few pennies more than does tetracycline alone.

Minimum adult dose: 1 capsule q.i.d.
Supply: Bottles of 12 and 100.

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SQUIBB TETRACYCLINE—NYSTATIN

antibacterial · antifungal

'MYSTECLIN' IS A SQUIBB TRADEMARK

SQUIBB

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The Newest Advance In Antianemia Therapy

The new Mol-Iron Panhemic formula in a daily dose of 2 small capsules provides:

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- Folic Acid and Ascorbic Acid—therapeutic amounts for those anemias responsive to these essential hemopoietic factors.
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- Essential B-vitamins—to relieve complicating nutritional deficiencies.

WHEN THE BODY IS TORTURED AND WRACKED WITH PAIN . . .

sodium-free salicylate therapy with little likelihood of electrolyte imbalance

Activated Salicylate Therapy

ACTYLATE
TRADEMARK

(Activated Triple Salicylates)

ACTYLATE,* a *potentiated triple salicylate* combination, provides rapid and sustained analgesic and antirheumatic benefits with minimal likelihood of electrolyte imbalance. ACTYLATE contains *no sodium*, and may be administered in conjunction with adrenocorticoids to lower the required dosage. Available through leading prescription pharmacies in bottles of 100 tablets.

Each ACTYLATE Tablet contains:

Ammonium Salicylate	80 mg. (1⅓ gr.)
Potassium Salicylate	80 mg. (1⅓ gr.)
Strontium Salicylate	80 mg. (1⅓ gr.)
Para-Aminobenzoic Acid . .	250 mg. (4 gr.)
Ascorbic Acid	20 mg. (⅓ gr.)

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Samples to Physicians on request

Kinney

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Off the Record . . .

True Stories From Our Readers

Each incident described has been contributed by one of our readers. Contributions describing actual and unusual happenings in your practice are welcome. For obvious reasons only your initials will be published. An imported German apothecary jar will be sent in appreciation for each accepted contribution.

"Underpar"

One of our local Sadie Thompsons stepped into my consultation room one evening.

I said, "You look tired this evening."

"Oh I don't think I look that bad, Doc," she replied. "Some old fellow in the lobby just asked me if I'd like to come up to his apartment and look at his itchings."

"Etchings, you mean," I corrected her.

"Well," she replied, "whatever it is, I passed him up. I'm not up to scratch tonight anyway."

F. J. V., M.D.
South Bend 1, Ind.

Patient's Diagnosis . . .

Patient to doctor: "I want a good physical examination. My mother just died of "ferocious" of the liver and I don't want it to happen to me."

A. L. C., M.D.
East Orange, N. J.

I'm Innocent

I came into the office one morning and it was filled with patients. One lady smiled very happily and said, "Doctor, you have gotten me pregnant," to which I replied hastily, "I had nothing to do with it." Then she blushingly explained that the vitamins I had prescribed for her had built her up so that she was able to get pregnant.

J. S. B., M.D.
Franklin, Ky.

Not Fatal

One morning after a bad bout of gastroenteritis I went to the hospital, and was greeted by the O.B. nurse with these words, "Good morning doctor. What's the matter? You sure look pooped out this morning." To which I replied, "That's exactly what is wrong with me!"

W. H. H., M.D.
Kokomo, Ind.

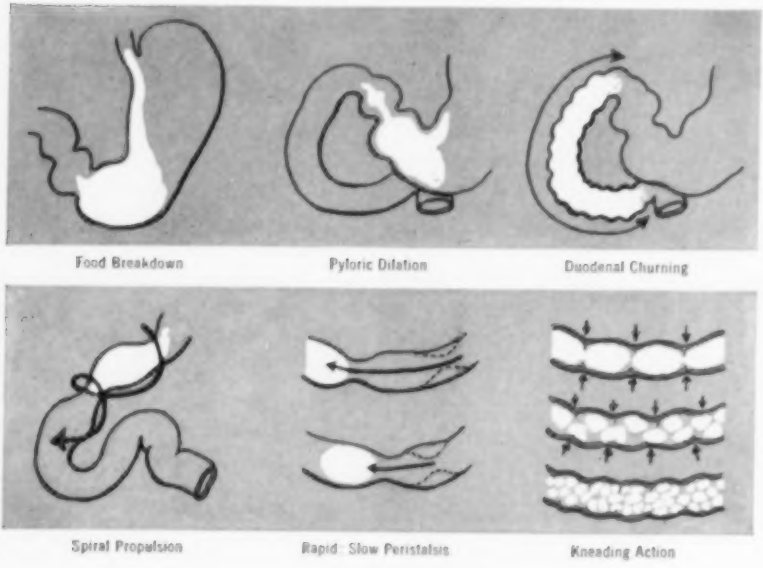
—Concluded on page 21a

"Smoothage-Bulk" Restores Normal Peristalsis

Normal peristaltic movements of the bowel depend on the consistency and quantity of the material within the lumen. In constipation, hypohydration accounts for the hard consistency and inadequate quantity of the fecal mass. With Metamucil, stool quality becomes soft and plastic, while stool quantity is increased to produce gentle distention, the natural stimulus to peristalsis.

Metamucil is the highly refined mucilloid of Plantago ovata (50%),

TYPES OF MOVEMENTS WITHIN THE BOWEL



METAMUCIL® IN BOWEL MANAGEMENT

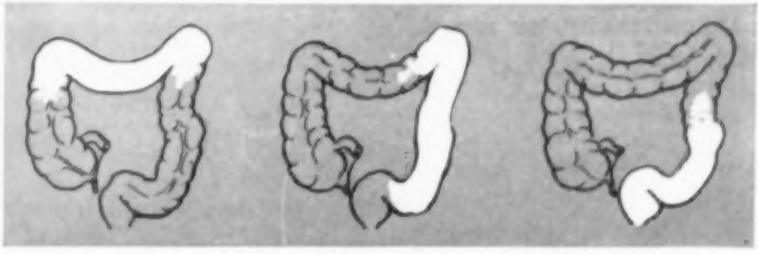
The gentle distention of the bowel wall provided by Metamucil® is physiologically corrective in constipation management.

a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent.

The usual adult dose is one rounded teaspoonful of Metamucil powder in a glass of cool water, milk or fruit juice, one to three times daily. An additional glass of liquid may be taken if indicated.

Metamucil is supplied in containers of 1, ½ and ¼ pound. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. G. D. Searle & Co., Research in the Service of Medicine.

Pendulous Movement | Villi Mixing | Ileocecal Dilation



Mass Colon Peristalsis

SEARLE

—Concluded from page 17a

Let's Hope Not!

The young lady walked with great difficulty into my office. I recognized her as a patient of some six months previous who was examined and found to have a venereal disease, but who failed to return for her treatments. My nurse assisted her on the examining table, and while I was examining her she asked, "what is wrong with me doctor?" I replied, "You have an abscess" whereas she bolted upright, looked wildly around, and exclaimed, "Oh doctor, do I have teeth in it?" Needless

to say my nurse and myself could hardly keep a straight face and so made a hurried exit.

J. W. B., M.D.
Louisville, Ky.

"Mistaken Identity"

I was relatively new in town, doing a general practice when I was called one night by an anxious mother to see her sick daughter. I hadn't seen the family before so was careful about the address and had no trouble finding the house because they thoughtfully had turned on the porch light.

I examined the little girl and left medication. I hadn't returned home more than ten minutes when one of the older local doctors called and asked how I happened to stop and see one of his patients? A darn good question.

Well, I had rung the wrong door-bell (missed it by one house) had treated the wrong patient, who had received phone advice from her doctor not more than thirty minutes before my arrival. The mother had called him to thank him for sending over that new young doctor.

Jokingly (I hope) I was accused of ringing door-bells.

H. P., M.D.
Cedar Falls, Iowa

Troubled!

A short time ago, a young girl came to see me because she had missed a menstrual period and wanted to know what was wrong with her. I examined her and told her she was definitely pregnant.

"Oh no," she said, "I can't be, because my boy friend is engaged to another girl."

"That's simple," I replied, "just tell him to break his engagement and marry you."

"Oh, he can't do that," she said, "his girl friend is more pregnant than I am!"

J. G., M.D.
Gary, Indiana

announcing
a new era in
corticosteroid therapy

METICORTEN

METACORTANDRACIN SCHERING

two new crystalline
adrenocorticoids
first discovered and
introduced by *Schering*

In a planned search for more effective substances without undesirable actions, two new crystalline corticosteroids have been discovered in Schering's research laboratories.

Possessing three to five times the therapeutic effectiveness of cortisone or hydrocortisone in rheumatoid arthritis and other so called collagen diseases, METICORTEN* and METICORTELONE* are strikingly devoid of undesirable side actions, particularly sodium retention and excessive potassium depletion. Patients treated with these new steroids do not exhibit fluid retention, and sedimentation rate is lowered even where cortisone ceases to be effective—"cortisone escape." These new compounds afford better relief of pain, swelling and tenderness, diminish joint stiffness and are effective in small dosage.

.....*and* METICORTELONE

METACORTANDRALONE SCHERING

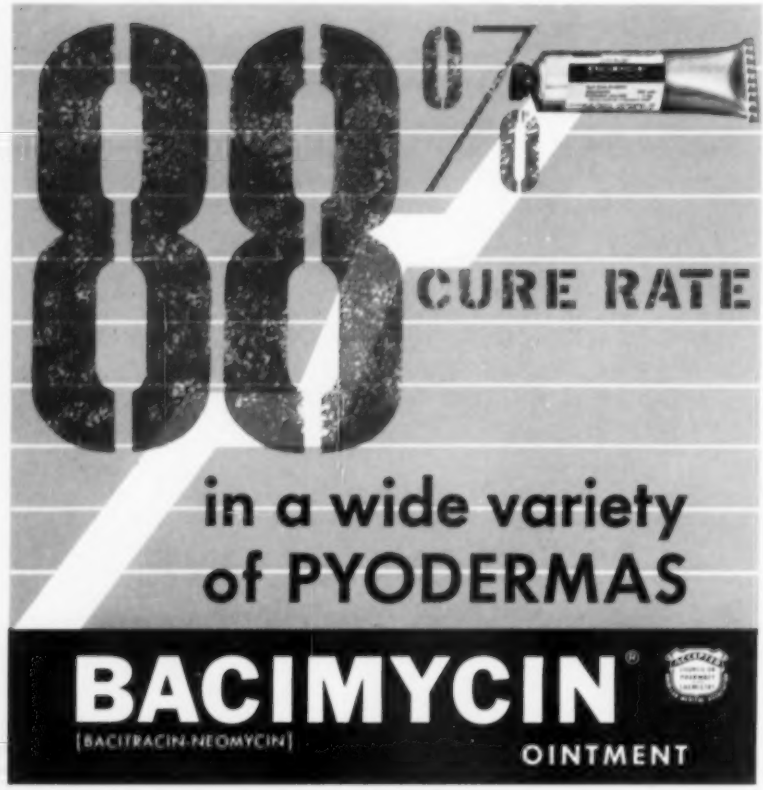
METICORTELONE, which resembles METICORTEN in clinical effect, is now being studied and will be available as soon as possible. The therapeutic properties of both drugs are being studied in other fields of therapy.

The first of these, METICORTEN, is being made available as 5 mg. tablets, bottles of 30. In the treatment of rheumatoid arthritis, dosage of METICORTEN begins with an average of 20-30 mg. a day. This is gradually reduced by 5 mg. until maintenance dosage of 5-20 mg. is reached, usually by the 14th day. The average maintenance dose is 5-10 mg. a day. The total 24-hour dose should be divided into 4 parts and administered *after meals and at bed time*. Patients may be transferred directly from hydrocortisone or cortisone to METICORTEN without difficulty.

SCHERING CORPORATION • BLOOMFIELD, N. J.

SCHERING

*T.M. Schering



a first choice for dual antibiotic therapy

In a recent study[1] of 53 patients with various types of pyodermas, the use of BACIMYCIN Ointment "...resulted in a cure rate of 88%..." and not a single case of sensitization or primary irritation occurred.

Impetigo, infectious eczematoid dermatitis, atopic eczema, secondary infections superimposed on dermatitis venenata, and folliculitis were among the common skin infections that showed marked improvement with BACIMYCIN therapy.

Supplied in ½-oz. tubes for prescriptions; in 100 gm. jars for hospital use.

Literature and samples on request.

1. Greenhouse, J. M., and Kyle, W. C.: A.M.A. Arch. Dermat. & Syph. 69:366, Mar., 1954.

Walker LABORATORIES, INC. MOUNT VERNON, NEW YORK

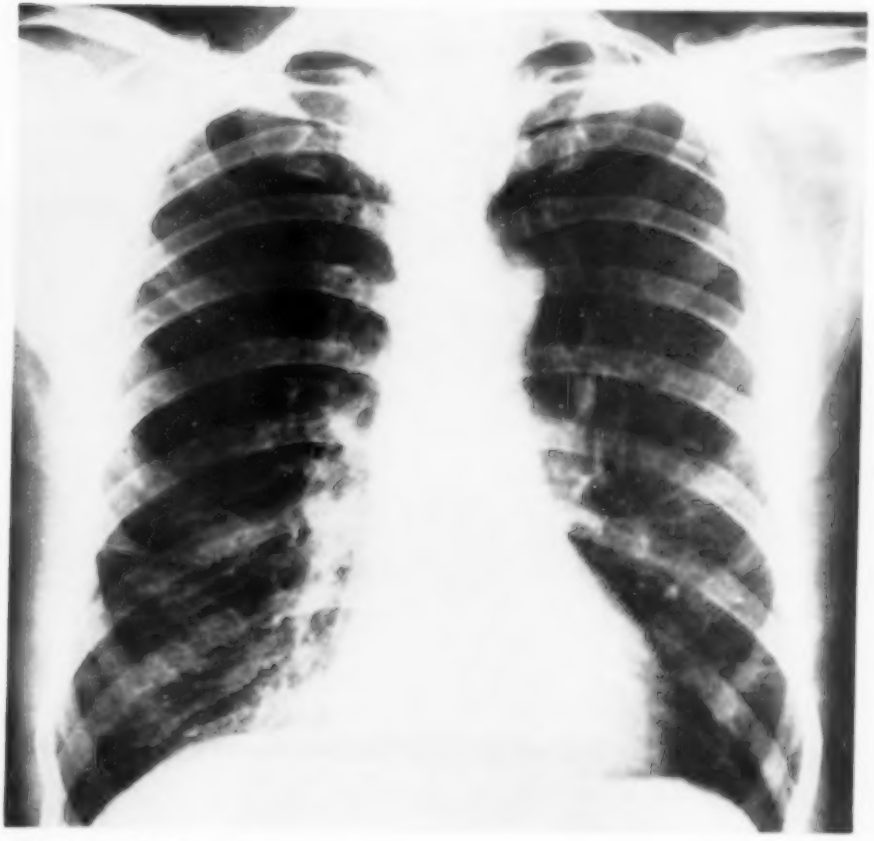
Diagnosis, Please!

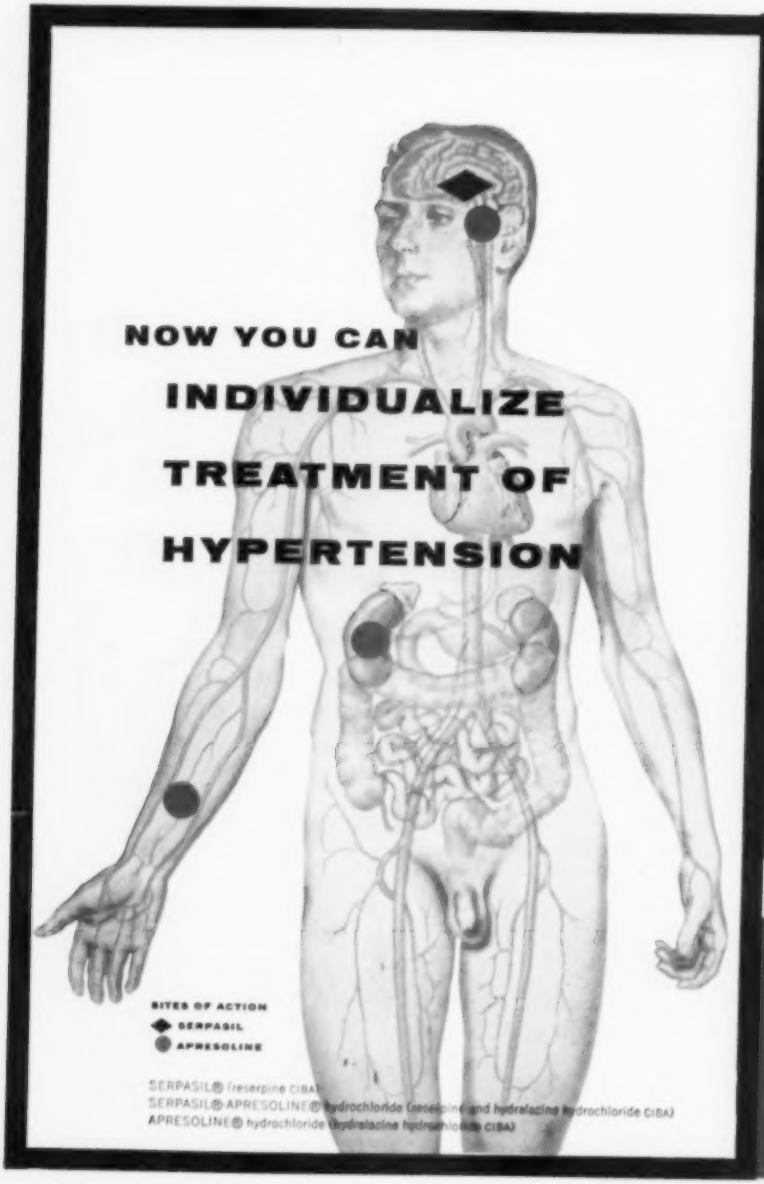
Edited by Maxwell H. Poppel, M.D., F.A.C.R., Professor of Radiology,
New York University College of Medicine and Director of Radiology, Bellevue Hospital Center

WHICH IS *YOUR* DIAGNOSIS?

1. Normal
2. Pulmonary tuberculosis
3. Emphysema with blebs
4. Congestion
5. Pneumonia

(ANSWER ON PAGE 96a)




NOW YOU CAN
INDIVIDUALIZE
TREATMENT OF
HYPERTENSION
SITES OF ACTION
SERPASIL
APRESOLINE
SERPASIL® (reserpine CIBA)
SERPASIL® APRESOLINE® hydrochloride (reserpine and hydralazine hydrochloride CIBA)
APRESOLINE® hydrochloride (hydralazine hydrochloride CIBA)

when patients are

tense, anxious, jittery, emotionally "bushed"

Use **safe, modern, relaxant-sedative**

SECONESIN®

to relax both mental and physical tension

This new combination of safe relaxant, mephenesin, and safe sedative, secobarbital, is **the ideal daytime "sedative"**

"... the feeling of relaxation and sedation induced by the combination was more satisfying and complete than could be induced by using either drug alone. There seems to be a definite clinical potentiation of the beneficial properties of each drug by the other when they are administered together." (Friedlander, H. S., Medical Times, June, 1953)

Each lime-colored **SECONESIN** tablet contains mephenesin 400 mg., secobarbital 30 mg. Bottles of 50, 100, 500

Usual Dose: 1 tablet t.i.d., preferably after meals, 1 or 2 tablets at bedtime.

samples? please write

CROOKES LABORATORIES, INC.
Therapeutic Preparations for the Medical Profession
MINEOLA, NEW YORK

Crookes

Coroner's Corner

Beneath The Surface

Among the essential ingredients of the intellectual armamentarium of the modern medico-legal investigator are a well-developed sense of curiosity, a high level of suspicion, an unwillingness to accept surface phenomena as the entire truth, and recognition of the fact that fatal violence can be sustained with little or no external evidence to point to the exact cause and manner of death.

The body of a 26 year old woman was brought to the Coroner's Office by the police with the information, submitted by several friends at the home, that the deceased had been under medical care for a chronic ailment, and that she had died peacefully in her own bed. The attending physician was said to be unavailable to sign the death certificate, and the case was referred to the Coroner's Office. The police stated that they had found the body in bed with the bed-clothes neatly arranged about it, and that nothing at the home seemed out of order. The final sentence of the police report stated "No evidence of criminality."

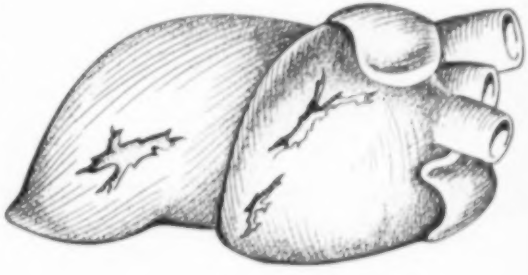
Inspection of the body showed a well-developed and well-nourished young woman without evidence of chronic illness. The skin, nail-beds and visible mucous membranes were pale. On the nose and right breast there were several small superficial scratches.

Internal examination revealed massive hemoperitoneum resulting from multiple lacerations of the liver and a complete laceration of the wall of the left ventricle with hemopericardium. The ribs and costal cartileges were flexible and intact. It was concluded that the visceral lacerations responsible for death were produced by pressure on the heart and liver by the elastic chest wall which had compressed the organs between the anterior rib cage and the posterior body wall and vertebral column.

In the light of the postmortem findings, the police were requested to re-investigate. The degree and nature of the injuries indicated the deceased could not have sustained the violent trauma, made her way into her bed, carefully tucking the bed-clothes about her, and then peacefully expire where she was said to have been found.

Interrogation of the witnesses at the home of the deceased by the police after first acquainting them with the fact that it was known that death had resulted from violence, elicited details of an assault by the victim's paramour during which he had jumped on her chest and abdomen with his knees. Following cessation of this activity, the woman was noted to be dead, and the assailant had threatened the onlookers with a similar fate if they said anything to the police. The body was then placed in bed, and the previous story concocted. The suspect was promptly arrested, indicted, and pled guilty to manslaughter without going to trial.

L.A., M.D., Cleveland, Ohio



Against streptococci

This is an actual sensitivity test with a strain of *Streptococcus pyogenes* on a blood agar plate. Note the high activity of ERYTHROCIN against this organism. This same streptococcus may be associated with *sinusitis . . . otitis media . . . tonsillitis . . . pneumonia . . . empyema . . . pharyngitis . . . septicemia . . . tracheobronchitis . . . streptococcal sore throat . . . scarlet fever . . . erysipelas . . . certain urinary tract infections* . . . and *certain cases of subacute bacterial endocarditis* and *osteomyelitis.*

specific therapy against the cocci...

Now, you can prescribe an antibiotic (*Filmtab* ERYTHROCIN) that is specific therapy for most bacterial respiratory infections. Specific therapy—because these infections are caused by staph-, strep- or pneumococci. *And the cocci are the very organisms most sensitive to* ERYTHROCIN. In fact, you'll find ERYTHROCIN more active against this group of organisms than many other antibiotics.

filmtab

Erythrocin® STEARATE

(ERYTHROMYCIN STEARATE, ABBOTT)

Against common intestinal flora

This sensitivity test shows ERYTHROCIN and the same antibiotics against a typical intestinal strain of *E. coli*. Note that ERYTHROCIN and penicillin do not affect growth of this organism—while the other antibiotics show marked inhibitory action. Since ERYTHROCIN is inactive against gram-negative organisms, *it is less likely to cause alteration in common intestinal flora—with an accompanying low incidence of side effects.*

...with little risk of serious side effects

The main reason is because ERYTHROCIN acts specifically. It destroys only harmful coccic invaders—yet doesn't materially change normal intestinal flora. *Thus, your patients rarely get side effects from* ERYTHROCIN. Nor do they get the allergic reactions sometimes seen with penicillin therapy. *Filmtab* ERYTHROCIN (100 and 200 mg.) comes in bottles of 25 and 100. Won't you prescribe *Filmtab* ERYTHROCIN—soon? Abbott

filmtab **Erythrocin®** STEARATE

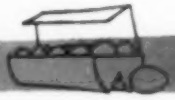
(ERYTHROMYCIN STEARATE, ABBOTT)

✶ MORE THAN 15 APPLES

. . . would be required to equal the 100 mg. ascorbic acid content of a single capsule of "BEMINAL" FORTE with VITAMIN C, which also provides therapeutic amounts of essential B factors as follows:

Thiamine mononitrate (B_1) ..... 25.0 mg.

equivalent to more than 400 eggs



Riboflavin (B_2) ..... 12.5 mg.

equivalent to at least 8 slices of liver

Nicotinamide .....100.0 mg.

equivalent to more than 10 loaves of bread

Pyridoxine HCl (B_6) ..... 1.0 mg.

equivalent to about 14 servings of spinach

Calc. pantothenate ..... 10.0 mg.

equivalent to almost 4 quarts of milk

Vitamin C (ascorbic acid) .....100.0 mg.

✶ equivalent to more than 15 apples

"BEMINAL"® FORTE with VITAMIN C

Ayerst

Recommended whenever high B and C levels are required and particularly pre- and postoperatively. Suggested dosage: 1 to 3 capsules daily, or more as required.

No. 817—supplied in bottles of 100 and 1,000.

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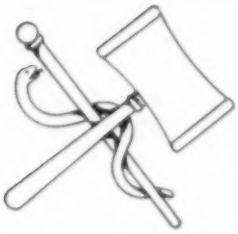


What's Your Verdict?

Edited by Ann Ficalich, Member of the Bar of New Jersey

A physician is indicted for the crime of abortion, and is tried and found guilty. On appeal, he claims immunity from criminal responsibility because he did not engage the abortionist to act.

The record of the trial discloses that a young, single woman approached the doctor at his office. She confided that she was pregnant, and sought his help. He told her he could do nothing, but that he knew of a layman who might assist her. Writing the name and telephone number on a slip of paper, he advised her to use the telephone in the drugstore across the street, and to give his street address as an introduction.

Accordingly, the young lady made the call, and thereupon visited the layman at his home. Arrangements were made to have the operation performed at a later date for a fee of $800.

The operation, when it took place, was interrupted by the unexpected arrival of police who took those present into custody. An examination of the patient, made at the request of the police, disclosed an attempted abortion not successfully completed.

On the day of trial, the principal actor pleaded guilty. The defendant doctor did not testify in his own defense, was found guilty, and appealed.

Counsel for the physician maintains that one is not made an accomplice under the law simply by giving of the name and address of a party who would perform an unlawful operation. The doctor was not present at the time of the abortion, nor did he engage the abortionist to perform the operation, and therefore cannot be found to be an aider and abettor of the crime.

The prosecutor, on the other hand, contends that the undenied facts indicate a criminal concert of action. A jury could well infer a prearranged code between the layman and the doctor from the facts. The direction to a telephone across the street, the instruction to give a street address, and the use of a layman, all these display a guilty knowledge and consciousness on the part of the doctor of what would take place.

How would you decide?

—Decision on page 437

Diatussin changes difficult-to-dose children into willing patients. Mothers, too, like *Diatussin* because it's easier to give. Two to four drops do the work of spoonfuls of syrup.

Dropped directly on the tongue or on a spoonful of dessert or cereal, *Diatussin* lessens frequency and severity of cough. Non-narcotic, *Diatussin* preserves the vital cough reflex, avoids sedation and gastro-intestinal disturbances.

tykes don't "take on" when they take...

DIATUSSIN®

non-narcotic cough control

Bischoff DIVISION

Dosage:

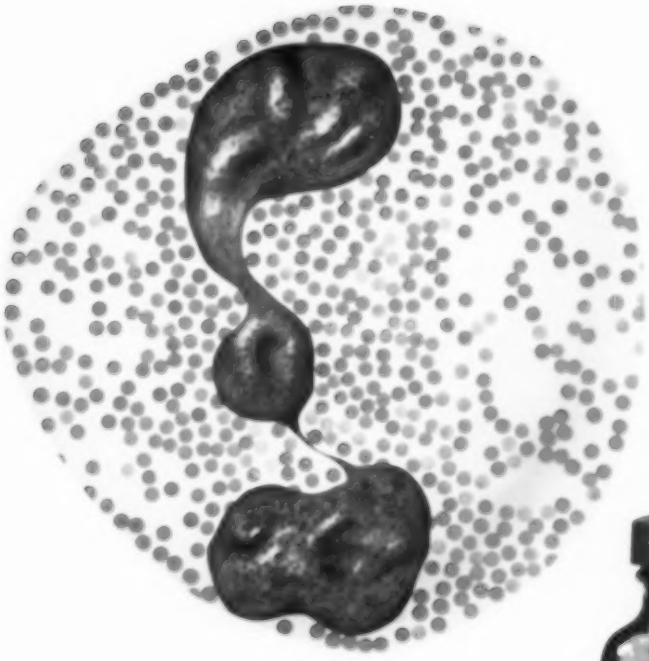
Under 5 years...2 to 4 drops three or four times daily. Over 5 years...5 drops three or four times daily.

Formula:	*Diatussin*
Thyme (alcoholic extract) . . .	39%
Drosera (alcoholic extract) . . .	39%
Ethyl alcohol	22%

Supplied in 6-cc. bottles with dropper.

Diatussin Syrup, in 4-oz., pint and gallon bottles, contains in each teaspoonful 2 drops of the extract in an aqueous dextrose vehicle.

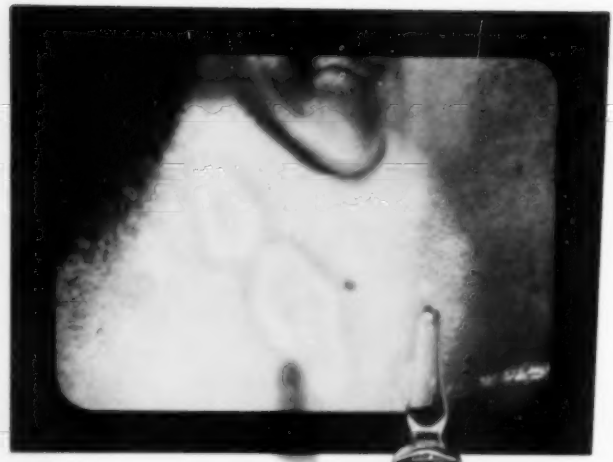
AMES COMPANY, INC • ELKHART, INDIANA



a first choice
for all types
of hypersensitivity

TABLETS..... 4 mg.
REPETABS®.... 8 mg.
INJECTION....10 and 100 mg./cc.

CHLOR-TRIMETON® Maleate, brand of chlorpropheny pyridamine maleate

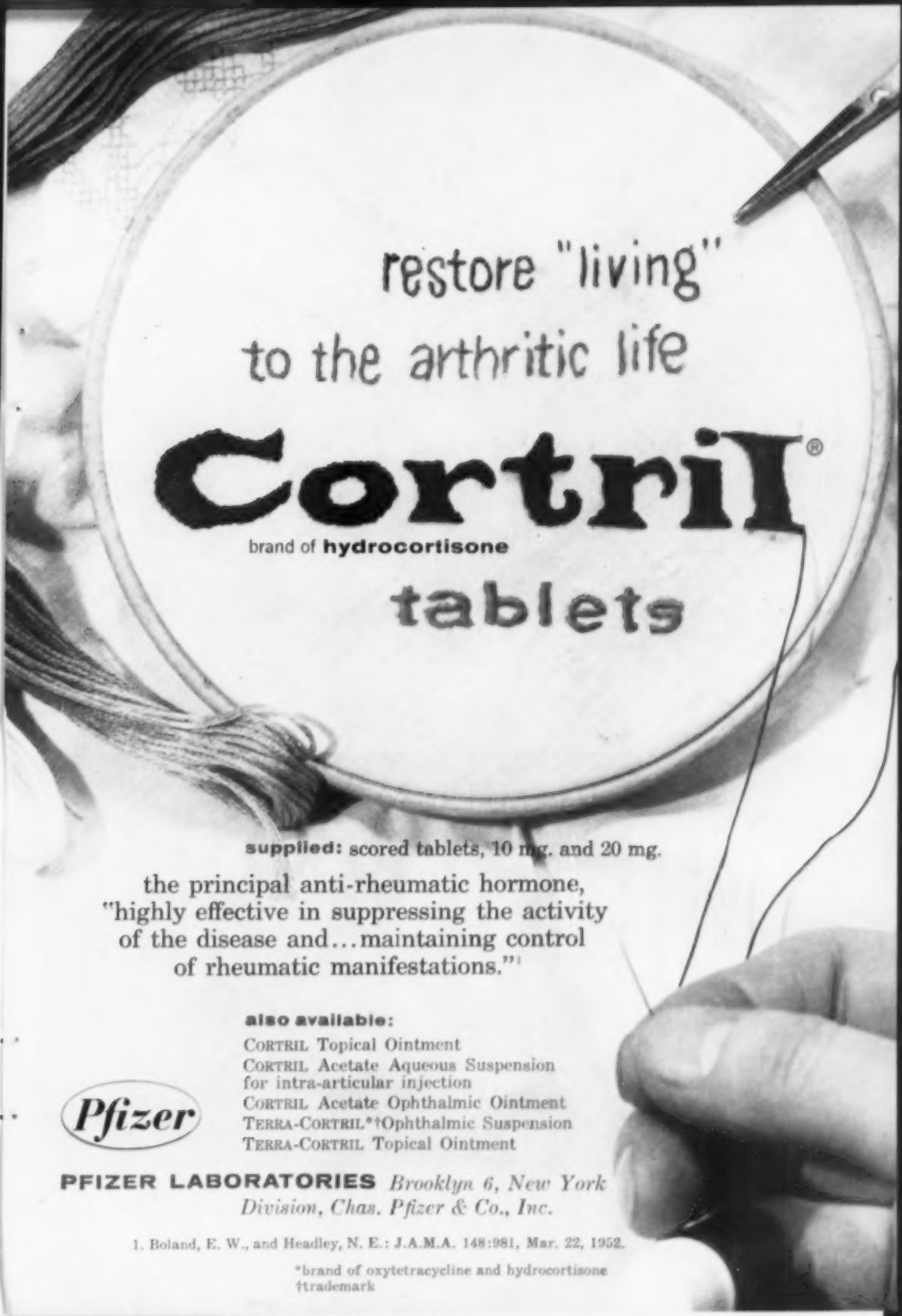


curb reactions

to penicillin and

many other drugs

inject intramuscularly 0.1 to 0.2 cc. (10 to 20 mg.) in the same syringe with compatible aqueous medications.



supplied: scored tablets, 10 mg. and 20 mg.

the principal anti-rheumatic hormone,
"highly effective in suppressing the activity
of the disease and...maintaining control
of rheumatic manifestations."[1]

also available:

CORTRIL Topical Ointment
CORTRIL Acetate Aqueous Suspension
for intra-articular injection
CORTRIL Acetate Ophthalmic Ointment
TERRA-CORTRIL*†Ophthalmic Suspension
TERRA-CORTRIL Topical Ointment

Pfizer

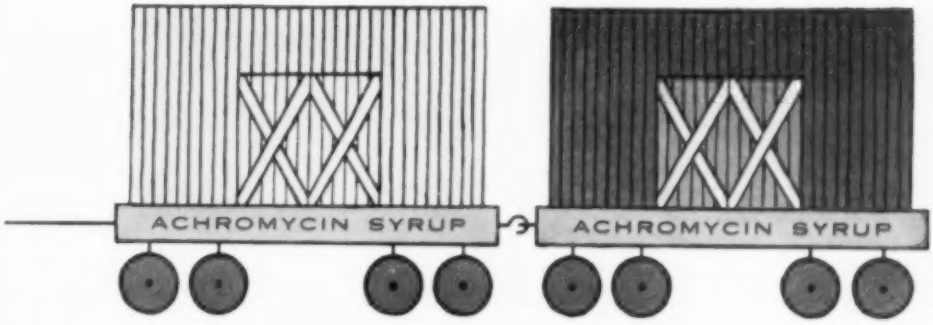
PFIZER LABORATORIES *Brooklyn 6, New York*
Division, Chas. Pfizer & Co., Inc.

1. Boland, E. W., and Headley, N. E.: J.A.M.A. 148:981, Mar. 22, 1952.

*brand of oxytetracycline and hydrocortisone
†trademark

READY TO USE! IN 2 OZ. BOTTLES!

NO AFTERTASTE! MISCIBLE WITH WATER, MILK, SODA!



SYRUP

ACHROMYCIN broad-spectrum • rapid diffusion • prompt control of infection • well tolerated • effective against Gram-positive and Gram-negative bacteria, rickettsiae, spirochetes, and certain viruses and protozoa.

Today's foremost antibiotic, tested and accepted by foremost medical authorities, produced and marketed by Lederle.

Lederle

LEDERLE LABORATORIES DIVISION

American Cyanamid Company Pearl River, New York

AEROPLAST®

Brand of Vibesate

LIQUID SURGICAL DRESSING

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

is now accepted by the Council on Pharmacy and Chemistry of the American Medical Association

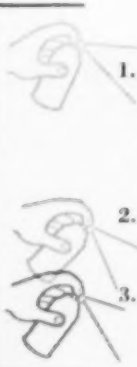
from the N. N. R. Monograph

"VIBESATE — (Aeroplast)

Vibesate is a modified polyvinyl plastic that forms a rapidly drying, transparent, pliable, and occlusive film when applied topically as a liquid spray containing a suitable volatile solvent and gaseous propellant.

Vibesate is useful as an occlusive surgical dressing for burns as well as for operative wounds and other surface lesions, particularly when use of gauze or other fabricated dressings is undesirable or inconvenient. The film also is suitable for covering certain skin eruptions, including macerated excoriations, decubitus and traumatic ulcers, and abrasions."

easy to apply



1. **Spray a light film onto aseptic dry wound from a distance of 6 to 12 inches.**
   Cover adjacent area of intact skin to provide anchorage.
   Hemostasis should be complete.
   May be applied over sutures.
2. **Allow film to dry for 30 seconds.**
   (sufficient time for the acetone solvent to evaporate)
3. **Repeat "spray and let dry" procedure (steps 1 and 2 above) two more times.**

Aeroplast is sterile

Supplied in 6 oz. aerosol-type dispenser.
Available through your surgical dealer or prescription pharmacy.

For literature and reprints write:

AEROPLAST CORPORATION 431 Dellrose Avenue, Dayton 3, Ohio

After Hours

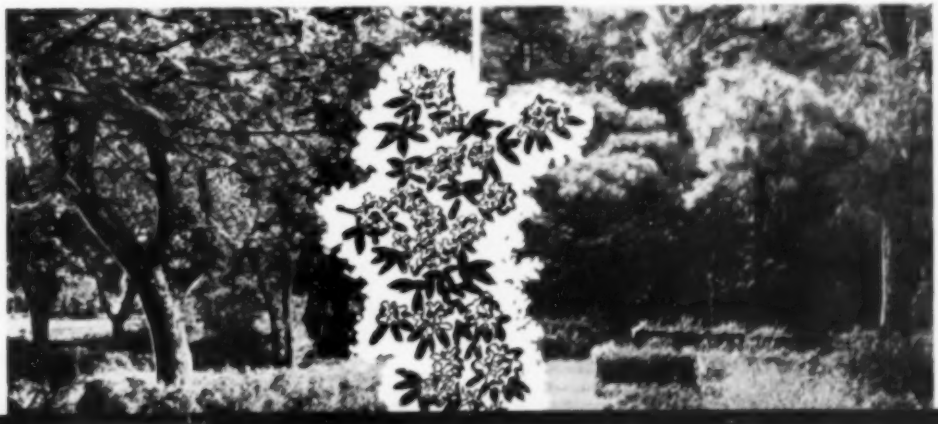
Photographs with brief descriptions of **your** hobby will be welcomed. A beautiful imported Germany apothecary jar will be sent to each contributor.

There is nothing more satisfying than to see nature burst forth with her myriads of color in the springtime bloom of some fifteen hundred kinds of azaleas.

As a pre-medical student, I enjoyed an opportunity to do some painting and sculptoring, but it wasn't until 1948 that I found the happiest medium (for me) in the expression of color and form. At that time, I was fortunate enough to come into possession of a five acre tract of land unusually well adapted to the growing of ericaceous plants. (Gladsgay Gardens). When my landscape architect planned a small azalea section in the budding garden, I knew that I had found a hobby that would provide an abundant outlet. I had been interested in camellias for several years.

Since that time, the whole area has been landscaped and now contains over one hundred thousand plants with a suitable background of evergreens. This includes practically all of the ericaceous group. I have holly, magnolias, camellias, rhododendron, kalmia, pierris, osmanthus, zenobia, and enkianthus, as well as plantings of ligustrum, photinia, hemlock and flowering trees and shrubs. I have been delighted with this outlet for color and form, for evergreens retain their mass the year round and in winter the delicate tracery of the deciduous types is something really to admire. But the pleasure of collecting azaleas (rhododendron) from all corners of the world has greatly been supplemented by the stimulation of study in the culture, propagating and breeding of this genus. Not only has the actual dealing with the horticultural problems been interesting, but contact with the particularly gentle breed of people in this field has led to many friendships and the formation of the Middle Atlantic Chapter of The American Rhododendron Society. This group now numbers one hundred members, including some of the most outstanding horticulturists in the East. One of the most prominent of these is Dr. Fred Coe of Washington, D. C. who did so much toward the publication of the AZALEA HANDBOOK by the American Horticultural Society. I know of no hobby with any more happy aspects than collecting azaleas for it presents many facets.

Dr. Thomas Wheeldon
6311 Three Chopt Road
Richmond, Virginia



Pyridium®

(PHENYLAZO-DIAMINO-PYRIDINE HCl)

Gratifying relief from urogenital symptoms *in a matter of minutes*

MAJOR ADVANTAGES: Swift-acting, soothing urinary analgesic. Nontoxic local action restricted to urogenital mucosa. Compatible with sulfas and antibiotics.

FOR COMFORT
ON THE JOB . . . AND AT PLAY

EFFECTIVE—An extensive evaluation[1] of the effects of PYRIDIUM in 118 cases of pyelonephritis, cystitis, prostatitis and urethritis showed the drug relieved or abolished dysuria in 95% of the patients and reduced or eliminated nocturia in 83.7% of the cases.

WELL-TOLERATED—Specific analgesic action is confined entirely to the urogenital mucosa. PYRIDIUM may be administered concomitantly with sulfonamides or antibiotics. When so used, it provides welcome relief from painful symptoms in the interval before the antibacterials can act.

PHYSIOLOGICAL—The soothing analgesic action of PYRIDIUM helps relax irritated, tense sphincter muscles of the bladder. This relaxation minimizes the amount of residual urine.

PSYCHOLOGICAL—Prompt appearance of the characteristic orange-red color in the urine is positive assurance to the patient of PYRIDIUM's rapid access to affected areas.

SUPPLIED—in 0.1 Gm. (1½ gr.) tablets, vials of 12 and bottles of 50, 500 and 1,000.

PYRIDIUM is the registered trade-mark of Nepera Chemical Co., Inc., for its brand of phenylazo-diamino-pyridine HCl. Sharp & Dohme, Division of Merck & Co., Inc., sole distributor in the United States.

SHARP & DOHME

Philadelphia 1, Pa.

DIVISION OF MERCK & CO., INC.

REFERENCE: 1. Kirwin, T. J., Lowsley, O. S., and Menning, J., *Am. J. Surg.* **62**:330-335, December 1943.

new ***iodine-free*** *oxyquinoline*

for bacterial and mycotic skin infections

STEROSAN®

(brand of chlorquinaldol)

High Antibacterial and Antifungal Potency[1]— combats majority of skin pathogens

Effective in Presence of Pus[2]— action not hampered by suppuration

No Development of Bacterial Resistance[2]— does not lose effect due to induced strain-resistance

Well-Tolerated[3]— minimal irritation or sensitization; not related to antibiotics or sulfas

Pleasant to Use[4]— agreeable odor, light color, no significant staining

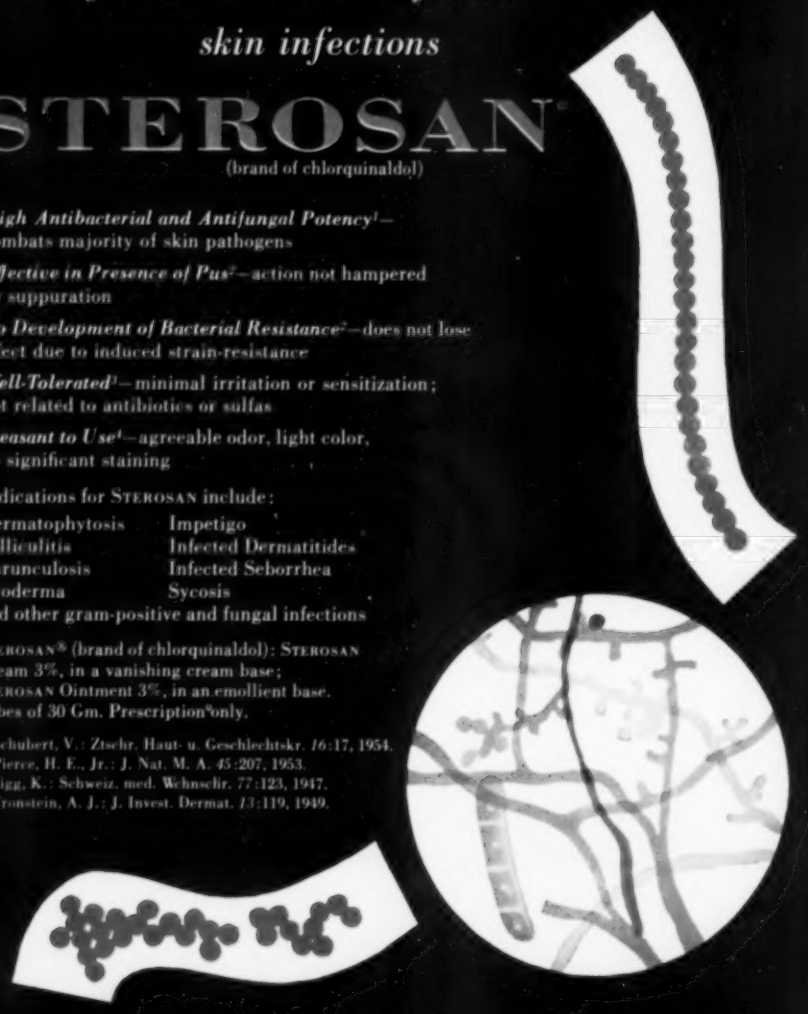
Indications for STEROSAN include:

Dermatophytosis	Impetigo
Folliculitis	Infected Dermatitides
Furunculosis	Infected Seborrhea
Pyoderma	Sycosis

and other gram-positive and fungal infections

STEROSAN® (brand of chlorquinaldol): STEROSAN Cream 3%, in a vanishing cream base; STEROSAN Ointment 3%, in an emollient base. Tubes of 30 Gm. Prescription only.

1. Schubert, V.: Ztschr. Haut- u. Geschlechtskr. *16*:17, 1954.
2. Pierce, H. E., Jr.: J. Nat. M. A. 45:207, 1953.
3. Sigg, K.: Schweiz. med. Wchnschr. 77:123, 1947.
4. Tronstein, A. J.: J. Invest. Dermat. *13*:119, 1949.



GEIGY PHARMACEUTICALS
Division of Geigy Chemical Corporation • 220 Church Street, New York 13, N.Y.
In Canada: Geigy Pharmaceuticals, Montreal

Geigy

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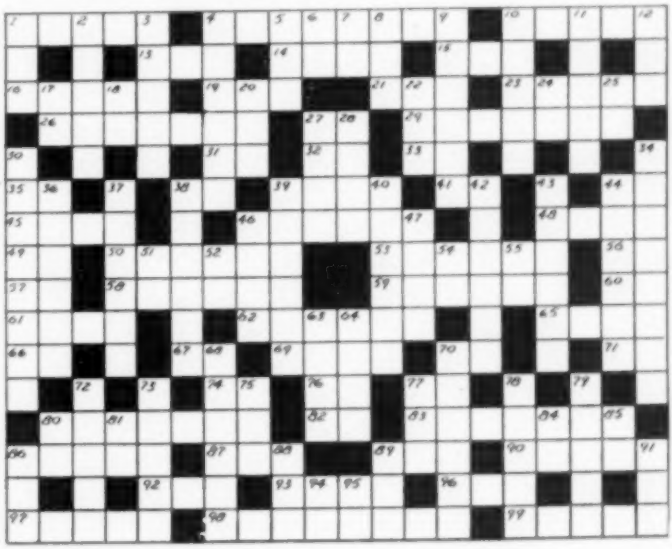
MEDICAL TEASERS

A Challenging Crossword Puzzle for the Physician

(Answer on page 100a)



Contributed by Mrs. Marie K. Holmes

ACROSS

1. Cutting instrument
4. Organism living on or in another
10. Childbirth
13. Beverage
14. Self (prefix)
15. Mineral spring
16. Nut
19. Finger protector
21. Broadcasting company (abbr.)
23. Sightless
26. Kind of grape (pl.)
27. Dad
29. Daily allowance of food (pl.)
31. Pronoun
32. Officer of the Day (abbr.)
33. Common operation (colloq.)
35. Academic degree
38. Form of "to be"
39. Pertaining to the mouth
41. Elevation (abbr.)
44. Pronoun
45. $CO(NH_2)_2$
46. Originator
48. Semi-precious stone
49. Not (Lat.)
50. Cut out portion of tissue
53. Washington's home, Mount ———
56. Late effects of alcoholism (abbr.)
57. Of (Lat.)
58. Loud sounds
59. Heroine of Greek fable
60. Railroad (abbr.)
61. Thought
62. Strict
65. Exclamation
66. Cesium (symb.)
67. Direction
69. Points
70. Upon
71. Arsenic (abbr.)
74. One of the states abbr.)
76. Preposition
77. Combining form denoting presence of oxygen
80. Made way by force
82. Conjunction
83. Weight used in ships to improve stability
86. Fungus developing on 91 vertical
87. Consume
89. Nothing
90. Change
92. Vessel
93. Wine (Ital.)
96. Tavern
97. Convolution of cerebral hemosphere
98. Pert. to Paracelsian school of medicine
99. Throat (obsolete)

DOWN

1. Submerge
2. Ossicle in the middle ear
3. "I & D" (V.)
4. Chest
5. Notorious disease carrier
6. Aurum (abbr.)
7. Thoroughfare (abbr.)
8. Electrified particle
9. Leakage
10. Lips
11. Carry
12. Shape of a bacillus
17. Printer's measure
18. Like
20. Our wartime secret service (abbr.)
22. Underwaist (colloq.)
24. Exclamation
25. Q. —. —. Not Enough (Lat.)
27. Ship's left
28. Girl's name
30. Icterus
34. Form of sugar
36. Reproduces offspring
37. Referring to the flesh
38. Undisturbed (Lat., 2 words)
39. Beginning
40. Affectionate ones
42. Location of "Barbor Surgeons' Hall"
43. Straightforward
44. Skin disease
46. Top cards
47. Dream (Fr.)
51. Early (prefix)
52. Is (Span.)
54. Radium (abbr.)
55. Preposition
63. Lift (Lat.)
64. Epic
68. Dresses up
70. An acid
72. Carbohydrate
73. Acute apoplectic attack
75. Girl's name
77. Sash (Jap.)
78. Colloquialism
79. Alcoholic salt
80. Title (abbr.)
81. Conjunction
84. Boy's nickname
85. Tellurium (abbr.)
86. Ovum
88. Tennessee Valley Authority (abbr.)
89. And not
91. Grain, host of 86 Horizontal
94. Inspector General (abbr.)
95. One of the states (abbr.)

B_{12}

new 'Troph-Iron'—the high potency Trophite† formula *plus* Iron—is a delicious preparation which stimulates appetite in patients of all ages, promotes growth in below-par children and corrects nutritional iron deficiency.

Each teaspoonful—the recommended daily dose—supplies:

Vitamin B_{12}	25 mcg.
Vitamin B_1	10 mg.
Ferric pyrophosphate	250 mg.

'Troph-Iron' is supplied to your pharmacist in specially treated, light resistant 4 fl. oz. bottles. Please prescribe in this size.

Smith, Kline & French Laboratories, Philadelphia 1

★Trademark †T.M. Reg. U.S. Pat. Off.

B_1

iron

for
those

"on the mend"

specify

VITERRA®
THERAPEUTIC

Therapeutic formula

11 minerals, 9 vitamins– for prompt nutritional recovery following illness. All in one soft gelatin capsule.

for
those

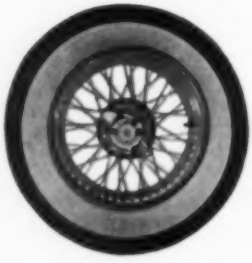
"on the go"

specify

VITERRA®

Supplemental formula

11 minerals, 10 vitamins– ideal as the prophylactic mineral-vitamin capsule. All in one soft gelatin capsule.



balanced formulae: for balanced nutrition ROERIC *Chicago 11, Illinois*

LETTERS TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

After Hours

Please accept my thanks for your nice handling of my "After Hours" article in your Hobby Department.

Your magazine has brief and practical articles which are easy to read and very helpful for those of us in General Practice.

C. Lewis Hyatt, M.D.
Monticello, Arkansas

Regarding Medical Times Prescription Pad Holder

Thank you for your journal and your wallet. It could not have come at a more apropos time. It was just what the doctor ordered for my bag. I must compliment you on how neat and tidy this wallet is, and at present it is serving a useful purpose.

Many thanks and kindly keep sending me your wonderful magazine.

N.E.A., M.D.
Mt. Vernon, N.Y.

Thank you very much for the lovely and useful gift you sent me. MEDICAL TIMES is the most important of all medical publications for the general practitioner. I read it from cover to cover to gain the up-to-date informa-

—Concluded on page 55a

Now you can do more for

Stress SF Fortified

The availability of such anti-infectives as Terramycin, Tetracyn and penicillin has not altered the wise admonition to "treat the patient as well as the disease." As the National Research Council[1] has emphasized, certain water-soluble vitamins (B-complex and C) and vitamin K are involved in body defense mechanisms as well as in tissue repair and are required in increased amounts during the stress of febrile infections. Yet there is often a considerable reduction in the normal supply of these important nutritional elements in acutely ill patients who are candidates for antibiotic therapy.

Unique new Stress Fortified Terramycin-SF, Tetracyn-SF and Pen-SF contain the stress vitamin formula recommended by the National Research Council[1] for therapeutic use during sickness or injury as a significant contribution to rapid recovery and convalescence. The patient is assured the maximum benefits of modern antibiotic therapy plus the needed vitamin support — without additional prescriptions, and at little additional cost.

1. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, Prepared with Collaboration of the Committee on Therapeutic Nutrition, Food and Nutrition Board, National Research Council, Baltimore, Waverly Press, 1952.

the patient with infection...

not only fight the infection,

but also Stress Fortify the patient

with a *single* prescription of

Terramycin®-SF

Brand of oxytetracycline with vitamins

CAPSULES (250 mg.)

Tetracyn®-SF

Brand of tetracycline with vitamins

CAPSULES (250 mg.) ORAL SUSPENSION (fruit flavored)
(125 mg. per 5 cc. teaspoonful)

Pen-SF*

CAPSULES (200,000 units)

Brand of penicillin G potassium with vitamins

The minimum daily dose of each antibiotic
(1 Gm. of Terramycin or Tetracyn,
or 600,000 units of penicillin)
Stress Fortifies the patient
with the stress vitamin formula
as recommended by
the National Research Council...

Ascorbic acid, U.S.P.	300 mg.
Thiamine mononitrate	10 mg.
Riboflavin	10 mg.
Niacinamide	100 mg.
Pyridoxine hydrochloride	2 mg.
Calcium pantothenate	20 mg.
Vitamin B_{12} activity	4 mcg.
Folic acid	1.5 mg.
Menadione (vitamin K analog)	2 mg.

for little more than the cost of antibiotic therapy alone

*TRADEMARK

available only from **Pfizer**

PFIZER LABORATORIES, Brooklyn 6, N. Y.
Division, Chas. Pfizer & Co., Inc.

as an antihistaminic agent

Pyribenzamine® *is unsurpassed*

...in hay fever . . .

in allergic rhinitis

in urticaria

in serum sickness

in angioneurotic edema

in drug reaction

for maximum relief

with minimal side effects

Pyribenzamine® hydrochloride
(tripelennamine hydrochloride CIBA)

C I B A Summit, N. J.

In this...

"the Commonest Disease of Civilized Man"

- In hypertension, management can now be started in the earliest stages . . . to retard progression, with the goal of prolonging useful life.
- Fully one half of all cases of mild, labile hypertension can be controlled with simple Rauwiloid therapy.
- Rauwiloid accomplishes what mere sedation cannot . . . the patient is spared the reaction to tension situations . . . without somnolence, without clouded sensorium, without change in alertness.
- The feeling of well-being engendered by Rauwiloid may become manifest as soon as 24 to 48 hours after the first dose. Its antihypertensive effect becomes apparent in two to three weeks.
- In the face of tension-producing stimuli, Rauwiloid, through its sedative and bradycrotic properties, provides tranquil equanimity.
- Its dosage schedule is uncomplicated, definite, easy to follow: Merely 2 tablets at bedtime. For maintenance, 1 tablet usually suffices. No contraindications.

Rauwiloid® *First Thought IN HYPERTENSION*

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.

from pain to productivity

Acetycol brings quick and effective relief to the patient suffering from arthritis, osteoarthritis, acute or chronic gout, and related rheumatoid disorders. As Acetycol increases the range of pain-free movement, the patient is able to resume a more normal, satisfying and productive life.

The prompt, sustained effect of Acetycol is due to a synergism between aspirin and para-aminobenzoic acid. High salicylate blood levels are attained with relatively low dosage. The addition of salicylated colchicine extends the effectiveness of Acetycol to gout or cases of a gouty nature.

Acetycol contains three important vitamins often deficient in older and rheumatic patients: these are ascorbic acid for prevention of degenerative changes in connective tissues; and thiamine and niacin for carbohydrate utilization and relief of joint pain and edema.

Each Acetycol tablet contains:

Aspirin	325.0 mg.
Para-aminobenzoic acid	162.0 mg.
Colchicine, salicylated	0.25 mg.
Ascorbic acid	20.0 mg.
Thiamine hydrochloride	5.0 mg.
Niacin	15.0 mg.

Supplied: Bottles of 100 and 500.

Acetycol

TRADEMARK

to relieve rheumatic pain

WARNER-CHILCOTT

Upjohn

Ulcer protection that lasts all night:

Pamine tablets

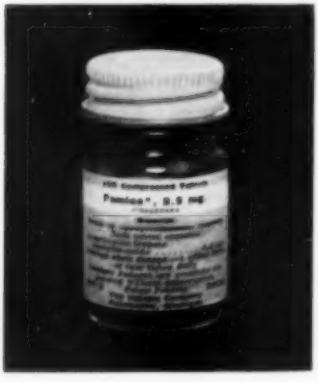
Bromide

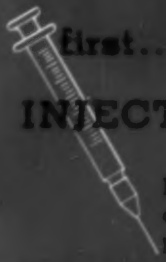
Each tablet contains:
Methscopolamine bromide
2.5 mg.

Average dosage (ulcer):
One tablet one-half hour before meals, and 1 to 2 tablets at bedtime.

Supplied:
Bottles of 100 and 500 tablets.

The Upjohn Company, Kalamazoo, Michigan





First... for fast hematinic response

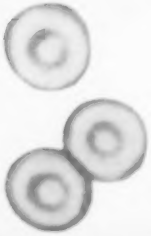
INJECT **HEPTERYL-12** Trademark

Re-establishes hematopoietic balance in both primary and secondary anemias, including those associated with pregnancy, infancy, and nutritional deficiency.

Each cc. contains: Folic acid 5 mg.; crystalline vitamin B_{12} 20 mcg.; and vitamin B_{12} 10 mcg., activity equivalent from Liver Injection U.S.P.

SUPPLIED: In 10-cc. multiple-dose vials.
See package circular for dosage.

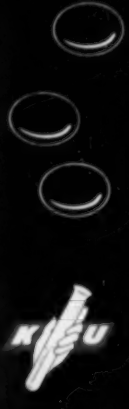
for ALL these anemias
K·U *inject-oral therapy*
Effective – Specific – Economical



such as macrocytic, hypochromic, and nutritional anemias

then... for sustained hematinic results

PRESCRIBE **RONUVIN** Tablets Trademark



Alleviates nutritional, iron deficiency, and selected macrocytic anemias by providing vital nutritive and hematologic factors in a readily assimilated and well-tolerated form.

The daily dose of 3 tablets contains: Vitamin B_{12} with Intrinsic Factor Concentrate 1/3 U.S.P. unit (oral); ferrous sulfate, dried 400 mg.; copper sulfate monohydrate 15 mg.; vitamin B_{12} 2.5 mcg.; folic acid 2 mg.; thiamine mononitrate 5 mg.; riboflavin 5 mg.; niacinamide 25 mg.; ascorbic acid 100 mg.; molybdenum 1.5 mg.; cobalt 0.5 mg.; manganese 0.5 mg.; zinc 0.5 mg.

SUPPLIED: Bottles of 100, 500, and 1000 tablets.

Ethical Pharmaceuticals Since 1894

KREMERS·URBAN COMPANY Laboratories in Milwaukee

LETTERS TO THE EDITOR

—Concluded from page 47a

tion regarding new remedies and treatments.

H.A.H., M.D.
Weehawken, N.J.

Thank you for your beautiful gift. Just what I needed for my B blanks.

Your magazine fills a definite need for the G.P. I get more out of one issue than from a year's issues of most other journals. Keep up the good work.

D.W.R., M.D.
Holmesburg, Pennsylvania

A little late with my thanks but nevertheless *sincere*. Received the combination prescription pad holder and wallet.

Thank you very kindly for the gift and for MEDICAL TIMES.

I have enjoyed every issue of the MEDICAL TIMES and appreciate it as a journal of great help for the General Practitioner.

Thanks again for your courtesy.

G.B.J., M.D.
Wrightsville, Georgia

Your timely and most attractive pad holder and wallet was graciously received and I find it exceedingly useful in my everyday practice.

I am proud and thankful for your kind consideration in bestowing this useful gift to me.

It is as refreshing as its donor.

F.Q.T., M.D.
Silver Spring, Maryland

Specifically for pediatric use...

AN
EFFECTIVE
NON-BARBITURATE
SEDATIVE

LULLAMIN® DROPS

Easy to administer . . . . safe to use

This safe yet effective sedative for the younger population has an appealing butterscotch flavor, and contains no bromides, barbiturates nor narcotics. It provides prudent medication for calming the restless child—and for establishing desired sleep patterns. Non-habituating, of course. May be mixed with milk or fruit juices.

Write for samples and literature

FORMULA: Each cc. contains
Methapyrilene Hydrochloride (N.N.R.) 16.0 mg.
in a pleasantly flavored syrup containing 0.2% alcohol

DOSAGE:
Under 1 yr. 0.2-0.4 cc. (5-10 drops)
1 to 6 yrs. 0.6 cc. (15 drops)
6 to 12 yrs. 0.8 cc. (20 drops)
Over 12 yrs. 1.2 cc. (30 drops)

FOR DAYTIME SEDATION:
As required up to Q.I.D.

TO AID IN INDUCING SLEEP:
One dose 15-30 minues before bedtime. May be repeated if necessary.

ISSUED: 25 cc. bottles with calibrated dropper.

R.B.S.

REED & CARNRICK
JERSEY CITY 6, NEW JERSEY

Rx LULLamin to LULL the restless child

a circulatory
and respiratory
stimulant . . .

Coramine®

ORAL SOLUTION

(nikethamide CIBA)

Clinical experience over many years has shown that Coramine Oral Solution is useful as a circulatory and respiratory stimulant for asthenic or elderly patients. It has been reported that Coramine Oral Solution may be beneficial in patients with coronary occlusion, in whom it appears to improve collateral circulation in the infarcted area and to stimulate the respiratory center.[1] Being noncumulative and having low toxicity, Coramine Oral Solution is suitable for prolonged treatment without danger of habituation developing. *Dosage:* ½ to 1 teaspoonful (2 to 4 ml.) 2 or 3 times a day—diluted, if desired, with water.

SUPPLIED: Coramine Oral Solution, a 25% aqueous solution of nikethamide; bottles of 1 and 3 fluid oz. and 1 pint. Also for intravenous or intramuscular use: Ampuls, 1.5 ml. and 5 ml.; multiple-dose vials, 20 ml.

1. Carey, L. S.: Delaware M. J. 21:229 (Oct.) 1949.

CIBA
SUMMIT, N. J.

11-2082

MODERN MEDICINALS

These brief resumes of essential information on the newer medicinals, which are not yet listed in the various reference books can be pasted on file cards and a record kept. This file can be kept by the physician for ready reference.

Achromycin Pharyngets & Troches, Lederle Laboratories, Division American Cyanamid Co., Pearl River, N. Y. Two new, highly palatable preparations for control of superficial infections of the mouth and throat. Each Pharynget and troche contains 15 mg. Achromycin tetracycline HCl is designed to dissolve slowly in the mouth. **Dose:** As determined by physician. **Sup:** Achromycin Troches are peppermint flavored and packaged in bottles of 25 and 250. Achromycin Pharyngets are cherry flavored, and come in boxes of 10.

Achromycin Syrup, Lederle Laboratories, Division of American Cyanamid Co., Pearl River, N. Y. Stable syrup preparation of Achromycin tetracycline. Each teaspoonful (5 cc.) contains 125 mg. of tetracycline HCl, 0.08% prophyparaben and 1% alcohol. Indicated in treatment of wide variety of diseases of infectious origin including pneumonia, pharyngitis, bronchopulmonary infection, acute bronchitis, tonsillitis, pertussis, otitis media, acute or chronic pyelonephritis, mixed bacterial infections, scarlet fever, pancreatic fibrosis, staphlococcal and pneymococcal septicemias, purulent meningitis, and ambetic infections. **Dose:** As determined by physician. **Sup:** In bottles of 2 fluid ounces.

Analeptone Elixir, Reed & Carnrick, Jersey City 6, N. J. Each teaspoonful (4 cc.) contains Metrazol (pentylenemetrazol) 200 mg., niacin 100 mg., in a Peptenzyme elixir base. Indicated in functional memory defects, mental confusion, mild behavioral disorders, irritability, antisocial attitudes and dizzy spells, particularly in the aged. **Dose:** As determined by physician. **Sup:** In bottles of 8 fl. ounces.

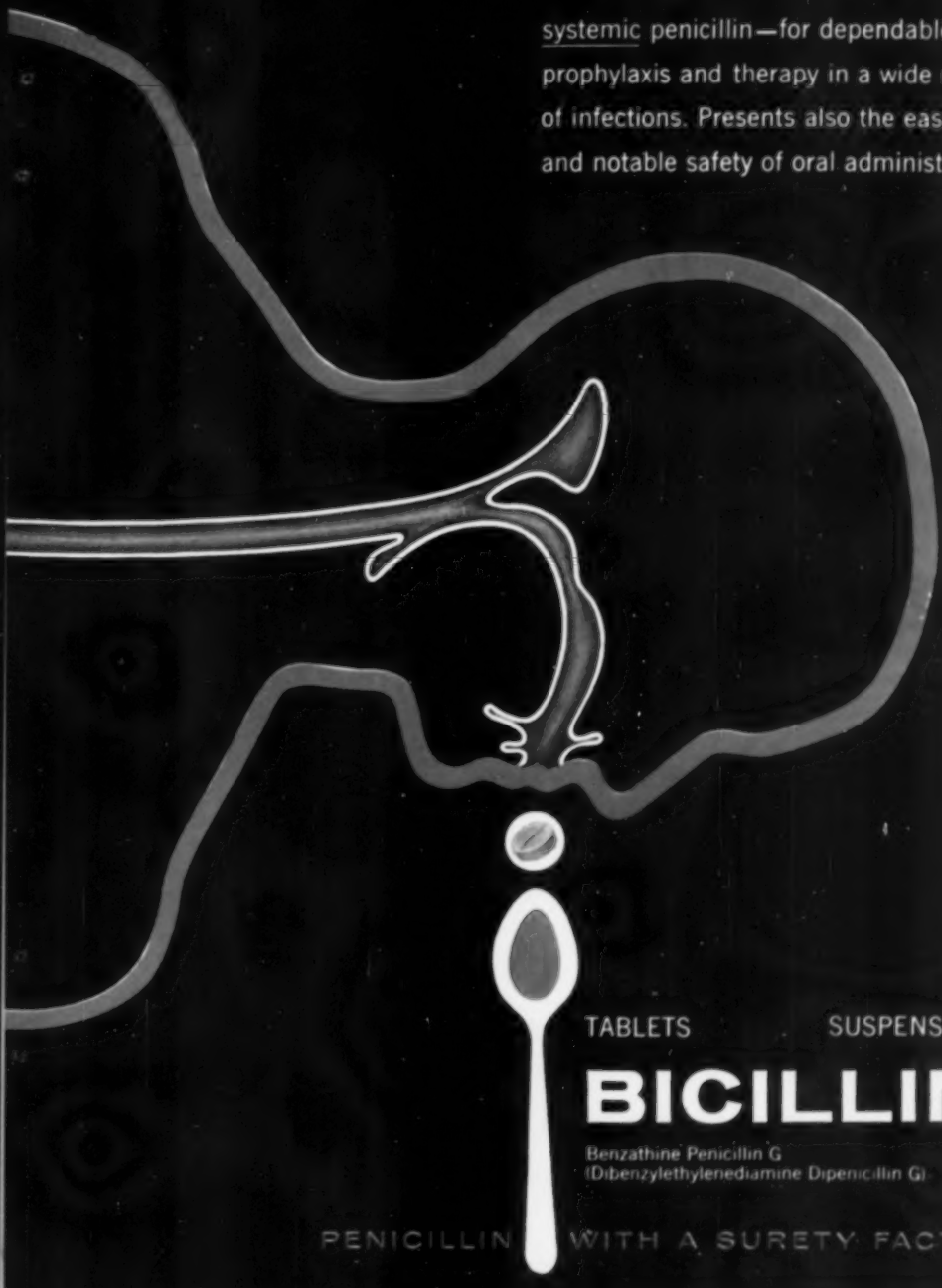
Coactyn, Kinney & Company, Inc., Columbus, Ind. A pH adjusted antispasmodic, each teaspoonful contains a phosphorated carbohydrate solution, together with homatropine methylbromide 0.5 mgm., and phenobarbital 8 mgm. To relieve symptoms in gastrointestinal conditions associated with spasm and pain. **Dose:** 1 or 2 teaspoonfuls every 3-4 hours. **Sup:** In bottles of 3 and 16 fluid ounces.

Doriden, Ciba Pharmaceutical Products, Summit, N. J. Non-barbiturate sedative and hypnotic contains glutethimide in 250 mg. and 500 mg. tablet strengths. Said to be free from practically all the major drawbacks and dangers of the barbiturate sleeping pills and sedatives. Particularly designed for use by elderly patients. **Dose:** As determined by physician. **Sup:** In bottles of 100, 500, and 1,000 tablets.

Elixophyllin, Sherman Laboratories, Detroit 15, Mich. Each tablespoon (15 cc.) contains: theophylline 80 mg. (aminophylline equivalent 100 mg.)

—Continued on page 65a

When you prescribe oral forms of BICILLIN, you ensure penicillin absorption. This is the safeguard afforded by BICILLIN's unique durability in gastric juice; acid buffers are never needed. Administered without regard to meals, BICILLIN means systemic penicillin—for dependable prophylaxis and therapy in a wide range of infections. Presents also the ease and notable safety of oral administration.



TABLETS SUSPENSION

BICILLIN®

Benzathine Penicillin G
(Dibenzylethylenediamine Dipenicillin G)

PENICILLIN WITH A SURETY FACTOR

invitation to asthma?

not necessarily . . .

Tedral, taken at the first sign of attack, often forestalls severe symptoms.

relief in minutes...Tedral brings symptomatic relief in a matter of minutes. Breathing becomes easier as Tedral relaxes smooth muscle, reduces tissue edema, provides mild sedation.

for 4 full hours...Tedral maintains more normal respiration for a sustained period—not just a momentary pause in the attack.

Tedral provides:

Theophylline	2 gr.
Ephedrine HCl	3/8 gr.
Phenobarbital	1/8 gr.

in boxes of 24, 120 and 1000 tablets

Tedral®

WARNER-CHILCOTT

—Continued from page 61a

and alcohol 3 cc. Both theophylline and alcohol are highly esteemed by many clinicians as coronary vasodilators. Elixophyllin is indicated wherever theophylline is used. **Dose:** 1 or 2 tablespoonfuls 3 times daily or as directed. **Sup:** In 16-oz. bottles.

Flavihist, Boyle & Company, Los Angeles, Calif. Triple antihistamine combined with lemon bioflavonoid, hesperidin, ascorbic acid, ephedrine, salicylamide, phenacetin, caffeine and atropine. For relief of headache and muscular pain due to common cold and to reduce nasal secretion associated with common cold. **Dose:** One capsule four times a day. **Sup:** In vials of 16 capsules.

Flaxedil, Lederle Laboratories, Division American Cyanamid Co., Pearl River, N. Y. A new, more potent formulation of Flaxadil Gallamine triethiodide—a synthetic curare-like compound—facilitating its administration in anesthesia. New potency of 100 mg. per cc. can be mixed with sodium pentothal without unnecessary addition to the Liquid content of the intravenous medication. Relaxes muscles by blocking transmission of nerve impulses from nerve endings to skeletal muscles. **Dose:** As determined by physician. **Sup:** In packages of 6 and 25—1 cc. ampuls, 100 mg. per cc.; and vials of 10 cc., 20 mg. per cc.

Gauiahist-Pediatab 14, Columbus Pharmacal Co., Columbus 15, Ohio. Used as an anti-tussive expectorant and nasal decongestant in cough and colds. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 1,000 tablets.

Liquid Bardase, Parke, Davis & Company, Detroit 32, Mich. Combines the anticholinergic activity of belladonna alkaloids, the sedative action of phenobarbital and the enzymatic properties of Taka-Diastase. For the treatment of visceral and smooth muscle spasm. May be used for treatment of irritable colon, ulcerative colitis, peptic ulcer, genitourinary disturbances and dysmenorrhea. Each 4 cc. of Liquid Bardase contains 1/4 grain phenobarbital, 2 1/2 grains Taka-Diastase, 0.1 mg. hyoscyamine sulfate, 0.007 mg. hyoscine (scopolamine) hydrobromide, and 0.02 mg. of atropine sulfate. **Dose:** Recommended dosage, under physician's prescription only, is 1 or 2 teaspoonfuls 3 times daily, depending upon the patient. **Sup:** In pint bottles.

Metamine (R) with Butabarbital, Thos. Leeming & Company, Inc., New York 17, N. Y. A combination of Metamine (triethanolamine phosphate, 2 mg.), the newest low-dose, long-acting angina pectoris preventive, and Butabarbital (1/4 gr.). To prevent angina pectoris attacks or greatly reduce their number and severity. **Dose:** Administered orally, 1 tablet after each meal and 1 or 2 tablets at bedtime. **Sup:** In bottles of 50 tablets (pale blue).

Meticorten Tablets, Schering Corp., Bloomfield, N. J. Metacortandracin, $\Delta^{1,4}$-pregnadiene-17α, 21-diol-3, 11, 20-trione. A new, and highly potent cortisone-like steroid having powerful anti-inflammatory action. Recommended for palliative treatment of rheumatoid arthritis. **Dose:** An average of 20 to 30 mg. a day, gradually reduced by 2 1/2 to 5 mg. until maintenance dosage of 5 to 20 mg. daily is reached, usually by 14th day. The total 24-hour dose should be divided into 4 parts, administered after meals

—Continued on page 65a

Now...

FULL ANTIARTHRITIC EFFECT WITH LOWER CORTISONE DOSAGE

NEOCYLATE®
TRADEMARK

WITH CORTISONE

New synergistic combination of the original potentiated salicylate (NEOCYLATE) with *lower, safer* amounts of cortisone . . . for *full-scale* antiarthritic action with *minimal risk of complications.*

Each NEOCYLATE® with CORTISONE Entab® contains:

Ammonium Salicylate	0.25 Gm. (4 gr.)
Potassium Para-Aminobenzoate	0.32 Gm. (5 gr.)
Ascorbic Acid	20 mg. (1/3 gr.)
Cortisone Acetate	5 mg. (1/12 gr.)

RECOMMENDED DOSAGE: For acute cases, 8 to 10 Entabs daily in divided doses. For maintenance, 1 or 2 Entabs four times daily.
SUPPLIED: Bottles of 50, 100, and 200 Entabs (enteric-coated tablets).

Literature on request

THE CENTRAL PHARMACAL COMPANY SEYMOUR, INDIANA

Products born of continuous research

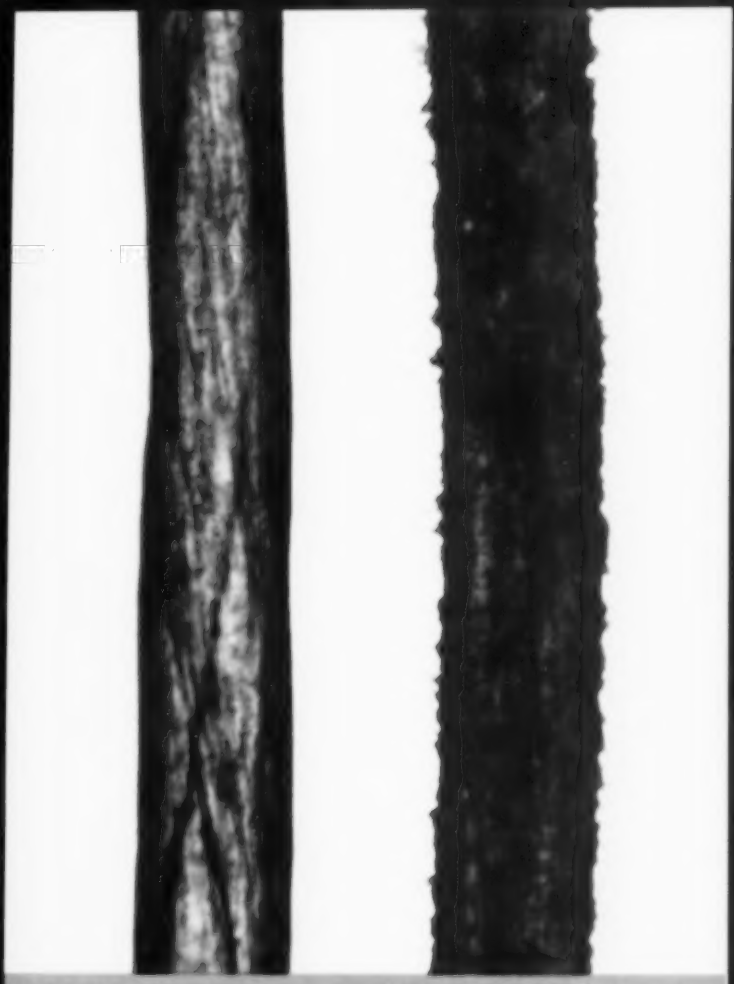
®Trademark of The Central Pharmacal Co.

Research shows why D & G gut is stronger

PHOTOMICROGRAPHY SEES WHAT THE HAND CANNOT FEEL

Photomicrographs (unretouched) by E. J. Thomas, Stamford Laboratory of the Research Division of the American Cyanamid Company, Stamford, Conn.

Method used: dark field, transmitted bright field illumination, 120 x. Material used: medium chromic gut, size 5-0.



D & G gut

Photomicrograph **shows the smooth surface of D & G SURGICAL GUT, with practically no fraying or roughness.** ***Reason:*** **Carefully controlled slitting of plies plus uniform twisting provides a smooth, well-bonded strand. No need to grind it to size. Gentle polishing gave the matte finish.** ***Result:*** **the full natural strength of each gut ribbon (ply) is preserved; the strand is not frayed by grinding.**

Another leading gut

Photomicrograph **reveals rough, frayed surface of another leading brand of gut. This has been ground to size. Gut processed in this way appears very uniform in diameter to the naked eye. But the photomicroscope reveals serious imperfections which may cause fraying and loss of strength when the knot is tied.**

see exhibit on next page

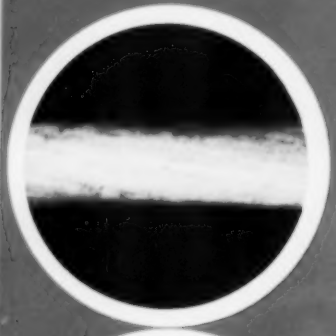
SUTURES AND OTHER D&G SURGICAL SPECIALTIES

DAVIS & GECK INC.

A unit of AMERICAN Cyanamid COMPANY

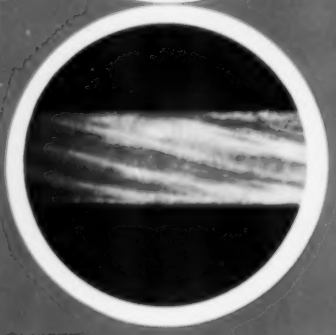
DANBURY, CONNECTICUT

Photomicrography shows why D & G gut is more flexible



D & G GUT

Firm, even cohesion of plies is apparent in this photomicrograph of a D & G SURGICAL GUT suture.
Reason: plies were twisted into a strand before suture was chromicized. Natural cohesive forces of moist untreated collagen firmly bond the plies together and hold the twist.
Result: under stress, plies of the suture hold together. The D & G gut is more flexible and knot strength is greater.



ANOTHER LEADING GUT

Photomicrograph detects separate and distinct plies in a strand of another leading brand of surgical gut. Here each ply was chromicized before they were twisted into suture strands. Such "ribbon chromicizing" hardens the surface of each ply, decreasing the natural bonding action, lowering the flexibility and tensile strength of the suture.

Photomicrographs (unretouched) by E. J. Thomas, Stamford Laboratory of the Research Division of the American Cyanamid Company, Stamford, Conn.

Method used: dark field, reflected illumination, focus on crest of surface, 32 x. Material used: medium chromic gut, size 00.

see exhibit on previous page

SUTURES AND OTHER SURGICAL SPECIALTIES

DAVIS & GECK INC.

A UNIT OF AMERICAN Cyanamid COMPANY

DANBURY, CONNECTICUT

IT'S AS EASY AS IT LOOKS...

NOTE the bare simplicity of the Viso-Cardiette operating panel below. Only two major controls are needed for routine testing — a power switch and a leads selector knob.

Because of the Viso's STABILITY, all adjustments — for sensitivity, baseline positioning, and stylus temperature — remain *faithfully set*, and their controls are so rarely needed that Viso designers placed them out of the way, yet readily accessible, under cover in the center of the operating panel above.

No special skill, knowledge, or talent is required to become an expert in the use of a Viso. The Viso works *with* the operator and practically does the whole job itself of turning out accurate, permanent cardiograms.

Viso-Cardiette operators everywhere praise the speedy, precise performance of this instrument, and particularly enjoy the extreme simplicity of its operation.

Write for

descriptive literature and details of the

Viso-Cardiette 15-day no-obligation trial plan.

SANBORN COMPANY
195 Massachusetts Avenue
Cambridge 39, Massachusetts

The inherent operating simplicity of Sanborn instruments is also found in the Sanborn Metabulator, a modern metabolism tester.

—Continued from page 65a

and at bedtime. **Sup:** 5 mg., half-scored tablets in bottles of 50.

Mio-Pressin, Smith, Kline & French Laboratories, Philadelphia 1, Pa. New balanced combination of 3 antihypertensive agents—rauwolfia, protoveratrine, and Dibenzyline. Provides comprehensive control over blood pressure-regulating mechanisms. Useful in all types of hypertension. **Dose:** As determined by physician. **Sup:** Two strengths.

Mysteclin, E. R. Squibb & Sons, New York 22, N. Y. A new antibiotic combination of Steclin and Mycostatin. Provides both broad spectrum antibacterial activity and protection against the sometimes fatal hazard of secondary infection by fungus growths. Each Mysteclin capsule contains 250 mg. of tetracycline hydrochloride and 250,000 units of mystatin. **Dose:** Since Mycostatin has virtually no undesirable side effects when administered orally, dosage depends upon the amount of Steclin required by the patient. Suggested minimum adult dosage is 4 capsules per day. **Sup:** In bottles of 12 and 100 capsules.

Noludar, Hoffmann-La Roche, Inc., Nutley, N. J. A non-barbiturate hypnotic. Noludar is a piperidine derivative providing relief of insomnia in approximately ½ hour. Restful sleep continues for 6 to 7 hours in most cases. **Dose:** As determined by physician. **Sup:** In scored tablets of two strengths: 200 mg., bottles of 100 and 1,000, and 50 mg., bottles of 100 and 1,000; elixir, 50 mg. per teaspoonful, in bottles of 16 ounces and one gallon.

Panmycin Drops, The Upjohn Company, Kalamazoo, Mich. Each cc. contains 100 mg. tetracycline hydrochloride (4 mg. per drop). A stable, fruit flavored oil suspension indicated in treatment of beta hemolytic streptococcic infections; E. coli infections; meningococcic, staphylococcic, pneumococcic and gonococcic infections; acute bronchitis and bronchiolitis; atypical pneumonias, and certain mixed infections. **Dose:** Children: under 20 lbs. body weight, 12 to 15 drops 4 times daily. **Sup:** In 10 cc. bottle with dropper.

Panmycin Readimixed, The Upjohn Company, Kalamazoo, Mich. Each 5 cc. (One teaspoonful) contains 125 mg. tetracycline hydrochloride. Indicated in treatment of beta hemolytic streptococcic infections; E. coli infections; meningococcic, staphylococcic, pneumococcic and gonococcic infections; acute bronchitis and bronchiolitis; atypical pneumonias, and certain mixed infections. **Dose:** Children: one-half teaspoonful per 20 to 50 lbs. of body weight 4 times daily. Adults: one to two teaspoonfuls 4 times daily. Treatment should be continued for 1 to 3 days after characteristic symptoms have subsided. **Sup:** 2 ounces.

Polycycline Aqueous 250, Bristol Laboratories, Syracuse, N. Y. Calcium tetracycline hydrochloride suspended in a cherry-flavored aqueous liquid. Each teaspoonful (5 cc.) contains 250 mg. of the antibiotic. For treatment of more than 40 different diseases proven sensitive to this wide range antibiotic. **Dose:** Administered orally as determined by physician. **Sup:** In bottles containing one fluid ounce.

Serpedon, Walker Laboratories, Inc., Mount Vernon, N. Y. A tranquilizing antispasmodic, supplying per tablet: reserpine, .1 mg., Hyoscyamine sulfate, .105 mg., atropine sulfate, .020

—Continued on page 76a

for your tense peptic ulcer patients

new

ANTRENYL®-PHENOBARBITAL

depresses... ...gastrointestinal motility

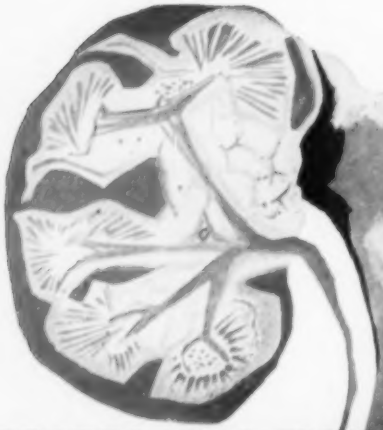
...gastric acid secretion

...nervousness and irritability so common in the ulcer diathesis

SUPPLIED: Antrenyl-Phenobarbital Tablets (scored), each tablet containing 5 mg. Antrenyl and 15 mg. phenobarbital.

Other forms: Tablets, 5 mg. Syrup, 5 mg. per 4-ml. teaspoonful. Pediatric Drops, 1 mg. per drop.

Antrenyl® bromide (oxyphenonium bromide CIBA)



IN URINARY TRACT INFECTIONS

RELIEF

STARTS IN A MATTER OF MINUTES WITH

urised

chimedic

SWIFTLY **combats the two primary causes of pain, burning, urgency, dysuria, frequency in genito-urinary infections.**

URISED's dual-powered formula exerts direct and steadfast control on pain-producing factors.

In a matter of minutes, through the parasympatholytic action of atropine, hyoscyamine and gelsemium, painful smooth muscle spasm is usually relieved and relaxed—directed toward a restored normal tone. In two or three days, distress may subside completely.

With equal rapidity, URISED's antibacterial agents — methenamine, salol, methylene blue and benzoic acid—traverse the entire urinary tract to hold bacterial growth at a minimum, reduce bacterial and pus-cell content, encourage healing of mucosal surfaces.

Prescribe URISED with confidence for prompt, effective pain relief, and for more dependable control of pyelitis, cystitis and urethritis. It is virtually non-toxic.

Overcomes Muscle Spasm

Prompt Antisepsis

Samples, literature, available on request.

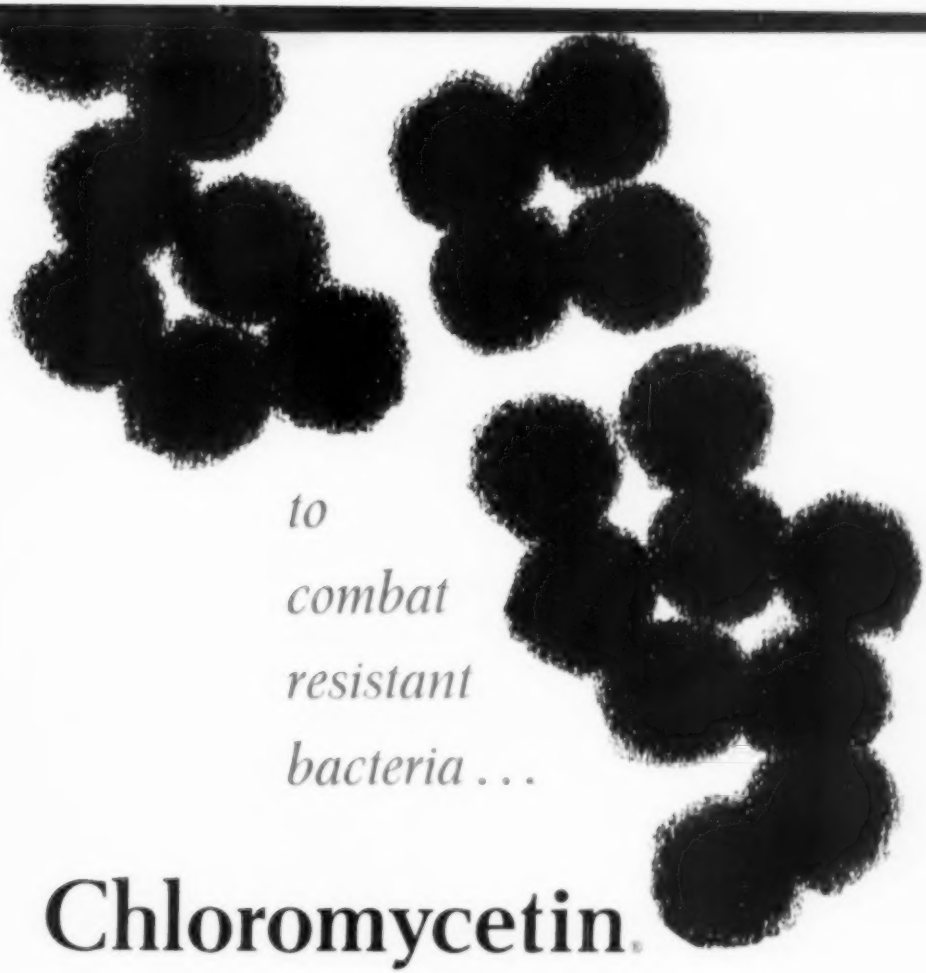
Supplied in bottles of 100, 1000, 2000

CHICAGO PHARMACAL COMPANY

5547 N. Ravenswood Ave., Chicago 40, Illinois

Pacific Coast Branch
381 Eleventh St., San Francisco, Calif.

Southern Branch
240 Spring St., N. W., Atlanta, Ga.



to
combat
resistant
bacteria . . .

Chloromycetin®

The rising incidence of bacterial resistance to various antibiotics constitutes a serious therapeutic problem. Many infections, once readily controlled, are now proving difficult to combat. Administration of **CHLOROMYCETIN** (chloramphenicol, Parke-Davis) is often useful in these cases because this notable, broad-spectrum antibiotic is frequently effective where other antibiotics fail.

"... An advantage of **CHLOROMYCETIN** appears to be its relatively low tendency to induce sensitization in the host or resistance among potential pathogens under clinical conditions."*

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

*Pratt, R., & Dufrenoy, J.: Texas Rep. Biol. & Med. *12*:145, 1954.

PARKE, DAVIS & COMPANY • DETROIT 32, MICHIGAN

for patients with painful "creaky" joints

Pabirin . . . safest of the antirheumatic salicylate-paba combinations

For these reasons: Salicylism does not occur, even with heavy daily requirements. *Low* dosage levels produce *high* blood levels. Acetylsalicylic acid, the most effective of the salicylates, is well-tolerated. Pabirin is sodium- *and* potassium-free. It offsets salicylate depletion of vitamin C by providing a therapeutic amount of 300 mg. in the average daily dose of six capsules. And highly effective . . . High blood levels are promptly reached and sustained due to the mutually potentiating action of acetylsalicylic acid and PABA plus the retarding effect of PABA on salicylate excretion. Rapidly disintegrating capsules provide fast absorption and pain relief.

Pabirin is a DORSEY preparation.

Each capsule contains:

Acetylsalicylic acid	5 gr.
Para-aminobenzoic acid	5 gr.
Ascorbic acid	50 mg.

Average dose: 2 to 3 capsules 3 or 4 times daily.
Supplied: In bottles of 100, 500 and 1,000 capsules.

Pabirin®

Smith-Dorsey • Lincoln, Nebraska • A Division of The Wander Company

Areas of Clinical Study / One of a series

ANEMIA OF PREGNANCY

Maintenance of normal blood values during pregnancy is a factor in the welfare of the mother at delivery and in preventing anemia in the infant. Improvement in the patient's vitality and emotional stability during gestation can also be achieved.

RONCOVITE, *the original, clinically proved cobalt-iron product, has introduced a wholly new concept in the prevention and treatment of anemia. It is based on the unique hemopoietic stimulation produced only by cobalt. The application of this new concept routinely in pregnancy practically insures against the development of iron-deficiency; its use has also led to marked, dramatic advances in the successful treatment of many of the anemias.*

In a recent clinical study of anemia in pregnancy, Holly[1] *reports:*

—about 80 per cent of normal patients manifest significant decreases in hematologic values during pregnancy.

—conversely, 90 per cent of pregnant women maintained hemoglobin levels of 12 Gm. per cent or over when given Roncovite (iron-cobalt therapy). No other medication tested was so successful.

—in fact, 63 per cent of these Roncovite treated patients delivered with the unusually satisfactory level of 13 Gm. per cent hemoglobin.

—Roncovite (iron-cobalt therapy) was proven to be the most effective hematinic. In fact, 57 of 58 patients (98.2%) maintained or improved their hemoglobin values.

RONCOVITE IS A SAFE DRUG.

in pregnancy—

"No toxic manifestations associated with its use have been observed."[1]

In prematures—

"None of them showed harmful effects despite the large doses..."[2]

In pharmacology—

"Histopathologic studies of rats that received cobaltous chloride ...revealed no significant degenerative changes in parenchymal organs as evidence of toxicity."[3]

SUPPLIED:

RONCOVITE TABLETS

Each enteric coated, red tablet contains:

Cobalt chloride..... 15 mg.
Ferrous sulfate exsiccated..... 0.2 Gm.

RONCOVITE-OB

Each enteric coated, red capsule-shaped tablet contains:

Cobalt chloride..... 15 mg.
Ferrous sulfate exsiccated..... 0.2 Gm.
Calcium lactate..... 0.9 Gm.
Vitamin D..... 250 units

RONCOVITE DROPS

Each 0.6 cc. (10 drops) provides:

Cobalt chloride (Cobalt 9.9 mg.)..... 40 mg.
Ferrous sulfate..... 75 mg.

DOSAGE:

One tablet after each meal and at bedtime. Children 1 year or over, 0.6 cc. (10 drops); infants less than 1 year, 0.3 cc. (5 drops) once daily diluted with water, milk, fruit or vegetable juice.

1. Holly, R. G.: Anemia in Pregnancy, Paper read at the Sixth American Congress on Obstetrics and Gynecology, Dec. 13-17, 1954, Chicago, Illinois.
2. Quilligan, J. J., Jr.: Texas State J. Med. *50:* 294 (May) 1954.
3. Hopps, H. C.; Stanley, A. J., and Shideler, A. M.: Polycythemia Induced by Cobalt, Amer. J. Clinical Path. *24:* (Dec.) 1954.

Bibliography of 192 references available on request.

RONCOVITE

The original, clinically proved cobalt-iron product

LLOYD

BROTHERS, INC.

Cincinnati, Ohio

In the Service of Medicine Since 1870

—Continued from page 68a

mg., and hyoscine HBR, .007 mg. Indicated in treatment of mild hypertension, anxiety, apprehension, emotional tension, excitability, headache and tinnitus, insomnia, menapausal syndrome and nervous tension. **Dose:** As determined by physician. **Sup:** As compressed scored tablets in bottles of 100 and 1000.

Terramycin-SF Capsules, Pfizer Laboratories, Division Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y. Terramycin-SF contains 250 mgs. of Terramycin (amphoteric), 2.5 mgs. of thiamine mononitrate, 2.5 mgs. of riboflavin, 75 mgs. of ascorbic acid, 25 mgs. of niacinamide, 0.5 mg. of pyridoxine hydrochloride, 5 mgs. of calcium pantothenate, 1 mcg. of vitamin B-12 activity, 0.375 mg. of folic acid, and 0.5 mg. of menadione in each soft gelatin capsule, for stress during infection. For all infectious diseases caused by Terramycin-susceptible organisms. **Dose:** Orally, as determined by physician. **Sup:** In round amber bottles of 16 and 100 capsules.

Tetracyn-SF Capsules, Pfizer Laboratories, Division Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y. Contains 250 mgs. of Tetracyn (amphoteric), 2.5 mgs. of thiamine monomitrate, 2.5 mgs. of riboflavin, 75 mgs. of ascorbic acid, 25 mgs. of niacinamide, 0.5 mg. of pyridoxine hydrochloride, 5 mgs. of clacium pantothenate, 1 mcg. of vitamin B-12 activity, 0.375 mg. of folic acid, and 0.5 mg. of menadione in each soft gelatin capsule. For stress during infection. For all infectious diseases caused by Tetracyn-suscep-

—Concluded on page 80a


for your seborrheic

when patients complain of itching, scaling, burning scalps—or when you spot these symptoms of seborrheic dermatitis—you can be sure of quick, lasting control when you *prescribe*

dermatitis patients... SELSUN®

controls 81-87% of all seborrheic dermatitis, 92-95% of all dandruff cases. Once scaling is controlled, SELSUN keeps the scalp healthy for one to four weeks with simple, pleasant treatments. In 4-fluid-ounce bottles, available on prescription only. Abbott

®*SELSUN Sulfide Suspension / Selenium Sulfide, Abbott*

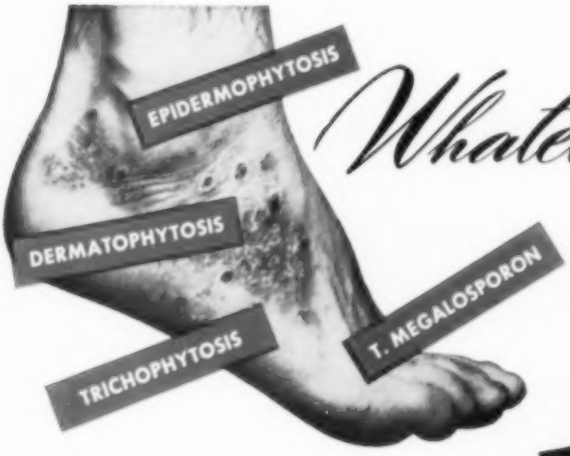
—Concluded from page 76a

tible organisms. **Dose:** Orally, as determined by physician. **Sup:** In round amber bottles of 16 and 100 capsules.

Thorazine Hydrochloride Syrup, Smith, Kline & French Laboratories, Philadelphia 1, Pa. Especially valuable in pediatrics and for treatment of elderly patient who experiences difficulty in taking tablets. Includes the control of severe nausea, vomiting, the management of hyperactive, severely disturbed, or manic children and potentiation of narcotics in the relief of intractable pain. **Dose:** As determined by physician. **Sup:** A colorless, citrus, flavored liquid, supplied in 4-fluid-ounce bottles, each containing 236 mg.

Tri-Synar, Armour Laboratories, Kankakee, Ill. Tablet containing powdered extract of belladonna, 4.1 mg., phenyltoloxamine, 20 mg., ethaverine hydrochloride, 20 mg. **Dose:** As determined by physician. **Sup:** In bottles of 100 tablets.

Trisocort Spraypak, Smith, Kline & French Laboratories, Philadelphia 1, Pa. Contains hydrocortisone, 3 antibiotics (gramicidin, polymyxin, and neomycin), and two decongestants (phenylephrine - hydrochloride and paredrine hydrobromide) for the local treatment of upper respiratory tract disorders. **Dose:** As determined by physician. **Sup:** In One-half fluid ounce spray bottles.



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1. Exp. Med. & Surg. 7:37, 1949.

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Dizziness And Vertigo

Etiologic Diagnosis the Crux of the Problem*

JAMES W. McLAURIN, M.D.
Baton Rouge, Louisiana

Dizziness is a very common complaint. It is doubtful that it will ever cease to be a very confusing complaint. The etiologic factors responsible for it are often difficult, and sometimes impossible, to diagnose. Treatment is frequently unsatisfactory.

Most discussions of dizziness begin with the series of statements just made. Not all of them go on to point out that one of the chief reasons why the results of therapy are so often unsatisfactory to both patient and physician is that diagnosis is superficial and treatment is instituted on symptomatic grounds alone. Dizziness is not in itself a clinical entity. It is merely a symptom arising from a clinical entity which sometimes is easily diagnosed but which very often can be identified only by painstaking diagnostic investigation. In dizziness, as in any other complaint, the practice of treating a symptom without determining its origin not only gives rise to unsatisfactory therapeutic results but also may permit a serious disease to continue unchecked until it has become irreversible.

From my own experience I would say that the chief reason why the diagnosis of dizziness is so casual and the results of treatment are so poor is the totally inadequate time usually allotted to its investigation. Most of us work on a 15-minute appointment schedule. It takes many times 15 minutes to investigate a patient who complains of dizziness, evaluate his story, direct or perform the necessary tests, and then evaluate the results of the tests in relation to the conclusions arrived at from the history and physical examination. There is, however, no justification for instituting any sort of treatment until this routine has been carried out. It is sometimes hard to persuade the patient, who is always more or less incapacitated from his illness, of the wisdom of making haste slowly, but a full explanation of the situation and the exercise of patience and sympathy will usually induce him to consent. It is perfectly safe to assure him that the effort and delay will be worth while. We have been

*From the Department of Otolaryngology, Tulane University of Louisiana School of Medicine.

using essentially the same methods of treatment of vertigo in my office for a number of years, but our results have improved very considerably since we began to carry out the routine which I shall describe.

Routine of Investigation We have found that it is perfectly practical to ask a patient who calls for an appointment what his chief complaint is, and to allot time to him on the tentative basis of his reply. A patient who says he is dizzy is given at least two appointments, spaced so as to permit time between them for such special studies as may be necessary.

History-Taking The classic definition of dizziness (vertigo) is consciousness of disordered orientation of the body in space. We take the relationship of the body to the physical world which surrounds us so much for granted that we often do not realize or fully appreciate the complex physical mechanism by which this relationship is maintained. The details do not belong in a paper of this type, but it may be stated, briefly, that the maintenance of equilibrium depends upon the maintenance of the normal physiology of (1) the eyes, (2) the proprioceptive system, (3) the so-called statokinetic system, which includes the labyrinth, the eighth nerve and the vestibular nuclei, and (4) the higher cerebral centers.

DeWeese[1] has expressed the matter very simply and clearly. The important mechanism in the maintenance of the correct relationship of the body to space is, as he expresses it, the interrelationship of the labyrinth, the eyes and the proprioceptive system. Equilibrium and locomotion may remain normal, because of a process of compensation, when there is loss of function of any one of these factors. When any two of them are involved in the functional loss, the result is incapacitation.

The average patient comes to the physician complaining of what he calls dizziness. If he sometimes describes his trouble as vertigo, it will usually develop that he is using the term as synonymous with dizziness and is not making any deliberate distinction between the words. As a practical matter, the average patient uses the term dizziness to cover a variety of complaints, including true vertigo (whirling dizziness), light-headedness, syncope, confusion, or even unsteadiness in gait.

Before anything else is done, therefore, the physician must make sure that he and the patient are talking about the same things. The simplest way to arrive at this common ground is to let the patient describe in his own words exactly what sensation he is experiencing. If he cannot proceed without help, carefully phrased questions, such as the following, are useful: Do you feel faint? Do you feel as if you were going to fall over? Do you feel as if you were looking down from a high place? Do you lose consciousness? Do you remember the details of the episode after it has passed? Do you feel as you did when you were turned in a swing as a child?

After these questions have been answered, it will be clear whether:

1. The patient has a true whirling vertigo, which is a sense of false motion. If the answer to the question about the swing is in the affirmative, this is what he has. When the eyes are closed, he feels as if he is moving. When the eyes are opened, he feels as if the environment is in motion.

2. He simply feels light-headed, unsteady, or something of the sort.

The definition of terms also indicates to the physician the direction which the investigation should follow. When the patient has a true vertigo, the origin may be in the external, middle or internal ear, the eighth cranial nerve, or the nuclei of the fourth ventricle. Otherwise, when he complains of dizziness in the catch-all sense of the term, the cause may lie anywhere in the body.

Once terms have been defined, the next step is to discover the details of the complaint. Is the dizziness continuous or paroxysmal? If it is paroxysmal, is it possible to relate it to any specific condition or circumstances? Does it occur when the patient is overworked, tired, nervous, or emotionally disturbed? Does it come on after eating, or after a meal has been skipped? Is there a previous history of trauma, even though slight, to which the symptom can be related? If so, is the patient receiving compensation? This is a practical consideration, which, regrettably, is related to many continuing symptoms in this material age. Is the patient taking any medication, or has he taken any recently? Is the symptom noted early in the morning or at other special times of day? Is it positional in origin?

If the patient is a woman, the details of the menstrual history are inquired into. A certain amount of dizziness in the female is of menopausal origin.

The degree of dizziness should also be determined. Severe vertigo, so extreme as to produce nausea and vomiting, is usually related to disease in an end organ, or, at least, in the statokinetic system. Less severe dizziness may arise from disease in any part of the body.

Associated symptoms are next inquired into. Nausea and vomiting have already been mentioned. Associated auditory disturbances are even more important. Again it is necessary to question the patient carefully and to make the differentiation between tinnitus and loss of hearing, which otherwise might be regarded as the same manifestation. Is the hearing loss present only when dizziness is present? Is it persistent? Was it present before dizziness began to be experienced? If so, has it become worse since the onset of vertigo or dizziness? Is it unilateral or bilateral? Are sounds distorted (diplacusis)? If tinnitus is present, does it occur only when dizziness is experienced or is it present otherwise? Is it continuous or intermittent? Is it precipitated by any special circumstances? What type is it—loud, roaring or ringing? Does the patient experience, sometimes or continuously, a sense of fullness in his ears?

Once these points are settled, the remainder of the history is proceeded with. It is a serious mistake, no matter how clearcut the diagnosis may seem, not to complete a detailed history. The otolaryngologist is trained in a special field, it is true, but his medical knowledge is, or should be, general enough to enable him to recognize the need for investigation in other fields. The origin of dizziness, as already noted, may be anywhere in the body. Furthermore, the patient may have some other serious, perhaps lethal, disease which can be diagnosed or at least suspected if all details of the history are secured. The otologist may, and often does, need the aid of consultants to complete the investigation, but the responsibility for recognizing the need for them is his alone.

Physical Examination Physical examination, like the history, must be complete. It should be conducted in an orderly fashion, which should be deviated from only for sound cause. The ears, nose, throat, nasopharynx, hypopharynx and larynx are examined thoroughly, in that order. The sinuses are transilluminated. The eustachian tubes are inflated. The blood pressure is taken in the upright position, and later, after the hearing is checked and the eyes are examined for positional nystagmus, in the recumbent position.

The physical examination is frequently entirely negative. It may, however, reveal positive data. Thus impacted cerumen, retraction of the ear drum, severe external otitis, or foreign bodies in the external auditory canal, all of which are evident on inspection, may explain mild dizziness, though not, of course, true vertigo. Suppurative middle ear disease is a possible cause of dizziness. A blocked eustachian tube may cause true vertigo, since the labyrinth is stimulated by negative pressure in the middle ear. Vertigo which occurs from a sudden block of the tubes, as in aerotitis, carries its own diagnosis, as do such conditions as chronic mastoiditis and cholesteatoma.

A disturbance of the corneal reflex may indicate the presence of a cerebellopontine angle tumor. Both gross imbalance of the ocular muscles and glaucoma may sometimes be responsible for dizziness. The most useful ophthalmic sign in dizzy patients, however, is often spontaneous nystagmus, particularly when it occurs in the primary position, with the eyes directed straight forward. Spontaneous vertical or diagonal nystagmus is practically always indicative of central nervous system disease; dissociated nystagmus is almost pathognomonic. Positional nystagmus should always be checked by means of 20-diopter lenses for magnification and preferably by a complete ophthalmoscopic examination. Without these precautions, fine nystagmus may be missed.

Functional Tests Whispered and spoken voice tests are of no value in determining auditory impairment. Tuning forks are useful, but the main reliance should be upon audiometric testing, which should be carried out whether or not the patient complains of impairment of hearing. Otherwise, loss for high tones may be overlooked. Both air and bone conduction testing is necessary, the opposite ear being masked when bone conduction is being tested. If these tests are normal, it may be assumed that the hearing is not impaired. If there is any abnormality, additional tests are carried out, including the discrimination or loudness balance test. In our own practice we are coming to rely more and more upon the discrimination test with speech audiometry.

The function of the labyrinth is then tested. Our own preference is for the Kobrak test, which is the most widely used of all such tests. The minimal stimulation of the labyrinth which it requires has been found to provide more information than the maximum stimulation formerly employed. Variations in the position of the head from the erect position (30° forward, 60° backward) permit testing of each labyrinth separately, at least in a crude sort of fashion. The Kobrak test indicates whether labyrinthine function is bilaterally equal, normal, hypoactive, hyperactive, or entirely absent. If func-

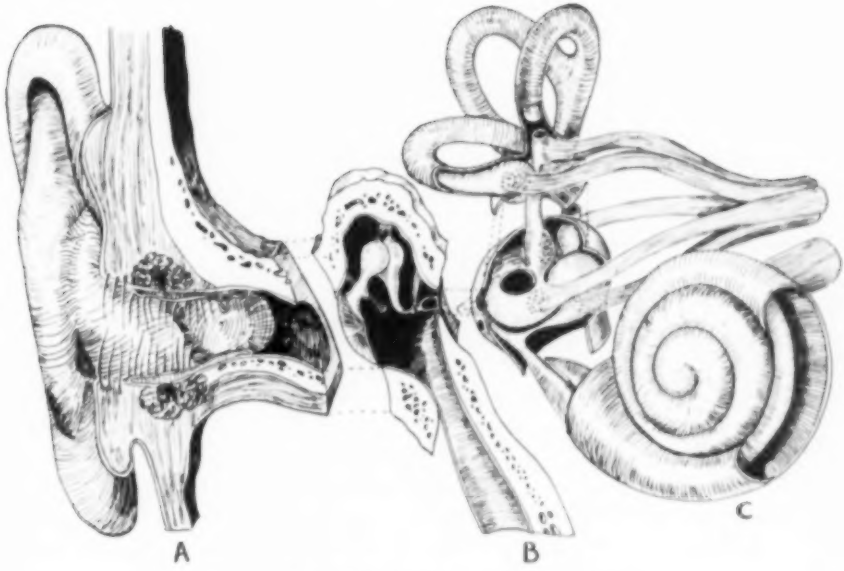

Fig. 1. Relation of labyrinth to middle ear.
A. Outer ear. B. Middle ear. C. Inner ear (labyrinth).

tion is apparently absent, the amount of water used is gradually increased until it is certain that no response can be elicited.

A caloric test produces in the normal subject a variety of reactions, including a feeling of vertigo, which is never severe, second degree nystagmus to the opposite side, and past pointing and falling to the side stimulated. With positional changes the nystagmus varies from rotary to horizontal. As DeWeese[1] correctly points out, the precise technique which the examiner employs in the test is not as important as his routine use of the same technique, so that, as his experience increases, he can build up his own criteria and make his evaluations more precise.

The Krobrak test also provides the patient with a yardstick against which he may report to the physician the similarity of the reaction produced by it to the vertigo or dizziness of which he complains. Knowing whether the reaction is more severe or less severe than the complaint which brings the patient to the office reveals his threshold of tolerance and permits the physician to evaluate more correctly the true severity of his complaint.

Differential Diagnosis With the information derived from the history and from the local and general examination, the reports of functional tests, and the reports of such consultants as he has found it necessary to call in, the otolaryngologist is ready to evaluate the data and proceed with his etiologic diagnosis.

Vascular Causes The largest group of patients who complain of dizziness have disease of vascular origin. This is what might be expected because the

labyrinthine branch of the internal auditory artery is an end organ and the regional blood supply is therefore highly susceptible to peripheral vascular insufficiency, which may originate in arteriosclerosis, vasospasm, or obstruction of the blood supply from other causes. The vascular changes in arteriosclerosis, in fact, are sometimes first manifested in the labyrinth because of its inherently poor blood supply.

The vertigo caused by arteriosclerosis is variable but as a rule is mild. It is experienced frequently but lasts for only brief periods. It is usually precipitated by quick turns or other sudden changes in position. In severe cases it may cause unsteadiness of gait. Hearing loss is usually bilateral but is not profound. Characteristically, the patient may hear well in a quiet place but may have great difficulty hearing the same person in a noisy atmosphere, especially when several others are talking. There is no fluctuation in the hearing loss, which is stabilized at the same level at all times. Sounds are not distorted. There is no sense of fullness in the inner ear. The associated tinnitus may be high-pitched and hissing, like release of steam, or it may be pulsating and synchronous with the heart beat. The caloric response is usually slightly diminished.

Vertigo of arteriosclerotic origin is most frequent in the older age groups. Vertigo resulting from vasospasm is more frequent in younger persons. Like vertigo of arteriosclerotic origin, it is most often noted when the position is changed suddenly. It may be fleeting or may last for hours or even for days, but it is not permanent. A ringing type of tinnitus is usually present but hearing loss is infrequent and, when it is present, it is often merely coincidental.

Vertigo arising from vasospasm is very frequent in women in the fifth decade of life. It is the direct result of vasomotor instability, which may have been present for years. While there are many basic causes, it is unusually frequent in allergic subjects and in patients who, for family, economic or other reasons are in a state of emotional tension.

Sudden obstruction of the internal auditory artery from any cause, such as a thrombus, an embolus, or simple spasm, may produce severe vertigo, roaring tinnitus, severe deafness, and nausea and vomiting. The onset is abrupt. The symptoms and signs persist for several days and then, as a rule, gradually clear, though the patient may be left with a mild postural vertigo and often with some permanent hearing impairment.

Cerebral anoxemia, regardless of the origin, is an extremely frequent cause of dizziness. Hypertensive cardiovascular disease may produce a sensation which is constantly present and which the patient frequently describes as a feeling of "uncertainty." This rather vague sensation may be interrupted by definite episodes of dizziness though not of whirling vertigo. The hypotensive subject complains of dizziness on changes of position, particularly when he rises from a sitting or recumbent position. Anemia, regardless of the origin, may be responsible for transient dizziness. Auricular fibrillation, decompensated cardiac disease, aortic stenosis and carotid sinus sensitivity may all have the same effect. The possibility of these various causations emphasizes the necessity, already stressed, for a complete examination of the dizzy

patient and for consultations with other specialists, as indicated.

Labyrinthine Causes Of all the diseases originating in the labyrinth Ménière's disease is the most characteristic. It is so characteristic, in fact—it appears in the classical form in 90 per cent or more of such patients—that it is astonishing that it is so often misdiagnosed, in the sense that it is believed to be present when it is not. The diagnosis of Ménière's disease is not justified unless (1) the attack of whirling vertigo is so abrupt that it seems almost explosive; (2) roaring tinnitus is present; (3) there is a perceptive hearing loss, which is more severe unilaterally; (4) there is complete relief of vertigo between attacks. The deafness does not disappear between attacks, though it improves in the intervals, and it is progressively more severe during each episode. In half or more of all patients with Ménière's disease vertigo ceases when deafness becomes total.

Within these limits the story varies considerably. The attacks may occur daily or may be separated by intervals of weeks or months. They may last from a few minutes to hours; the vertigo disappears in a matter of hours but the other symptoms are likely to last longer. Severe attacks may be associated with nausea and vomiting, incontinence and unconsciousness. Between attacks the patient complains of deep pressure or fullness in the involved ear, but there is no blockage of the eustachian tubes to explain it. Diplacusis is frequently present, and the patient may complain of pain when sound strikes the ear. The tinnitus, which persists between attacks, is often worse just before them. Although it is roaring, the tone is low and it is quite different from the high-pitched tinnitus of arteriosclerosis. Caloric testing usually reveals a diminished response in both ears, more marked in the more seriously affected ear.

Patients with Ménière's disease are inclined to be extremely apprehensive, and with obvious reason. Fowler and Zeckel[2] have advanced the theory that psychoneurotic factors, instead of being a result of the disease, are actually the cause. Their theory is that as a result of these factors, the blood flow within the small blood vessels of the labyrinth is slowed on an adrenergic pattern and that the hydrops characteristic of the disease results from excessive "lumping" of red blood cells, the lumps being arrested in the smaller vessels of the labyrinth. These observers also believe that the lumping and early blood sludge which they postulate can be demonstrated in the bulbar conjunctiva before and after attacks. Whether or not this theory is eventually accepted, it suggests that an investigation into the patient's neuropsychiatric history should always be part of the general study. There is no doubt that psychoneurosis accounts for a great many cases of dizziness, but it is almost never responsible for true vertigo, and every other cause should be exhausted before the patient is flung into what DeWeese[3] well describes as this diagnostic wastebasket.

Ménière's disease, which is an episodic disease, must be distinguished from the so-called symptomatic Ménière's syndrome, a non-episodic disease consisting of vertigo, spontaneous nystagmus and deafness, all of which are usually present at the same time. This syndrome arises from a variety

of conditions, including secretory, and chronic adhesive otitis media, blockage of eustachian tube, and cholesteatoma.

Diseases of the Eighth Cranial Nerve Dizziness, tinnitus and perceptive hearing loss may accompany diseases of the eighth nerve and trauma to it. When the cause is an infection, such as meningitis, dizziness improves as the infection is controlled, but the hearing loss is permanent. Spontaneous nystagmus is frequently present during the irritative phase.

Tumors of the cerebellopontine angle or posterior fossa produce slowly progressive dizziness, tinnitus, and hearing loss, which is perceptive and progressive. Loss of bone conduction is often early and complete while the air conduction threshold is still in the neighborhood of 50-60 decibels. Response to caloric stimulation is progressively diminished and is finally completely lost. The fifth nerve is often involved early, the first sign, as already noted, being a loss of the corneal reflex. The disappearance of this reflex may point to the diagnosis while tinnitus and hearing loss still give no indication of where the trouble is located. In acoustic neuromas cochlear symptoms appear first and response to caloric stimulation frequently disappears on the affected side before the hearing loss becomes total.

Trauma to the eighth nerve is usually the result of a basilar skull fracture usually through the petrous apex. Less often the nerve is damaged in the course of operation. The dizziness, which takes the form of whirling vertigo, is temporary; it disappears as soon as the contralateral labyrinth begins to compensate for the unilateral loss. The hearing loss, which is unilateral, is usually permanent. The sixth and seventh nerves, because of their close proximity, are often involved in trauma to the eighth nerve, and facial nerve paralysis and lateral rectus palsy are frequently associated.

Disease of the Brain Stem Whirling vertigo may be caused by infections of the brain stem, including encephalitis, meningitis and cerebral abscess, as well as by trauma, thrombosis of the posterior inferior cerebellar artery, and tumors involving the brain stem in the region of the vestibular nuclei. In the beginning, when the lesion is small, neither hearing loss nor tinnitus is present. Both appear as the lesions enlarge, and the nuclei of the other cranial nerves are necessarily affected because of their close proximity.

Ten per cent or more of all patients with multiple sclerosis present vertigo as an initial symptom. The onset is sudden, though not as abrupt as in Ménière's disease. There is neither loss of hearing nor tinnitus, and the vertigo, after persisting for several days or even several weeks, eventually disappears. Multiple sclerosis is another disease which illustrates the importance of a detailed history in all cases of dizziness. It requires a thorough neurologic study, including lumbar puncture and fundoscopic examination.

Other Causes The wide variety of other conditions which must be considered in the differential diagnosis of dizziness cannot be discussed in the limits of this paper. They include foci of infection; gastrointestinal diseases; virus diseases, such as influenza, metabolic disturbances, such as hypoglycemia, thyroid disease and other endocrine disorders; and nutritional diseases, such as pellagra. In drug-

caused toxic labyrinthitis, such as is caused by quinine, the salicylates and morphine, vertigo lasts for a few days or a few weeks. Tinnitus is present, high-pitched in character, and hearing changes are perceptive. In streptomycin-caused dizziness there may be irreversible damage to the function of the labyrinth, presumably due to direct toxic action of the drug on the central nuclei. The hearing loss is of the high-tone type and tinnitus is usually high-pitched and ringing. The caloric response is diminished bilaterally. The toxic process in the central nuclei may continue even after the drug has been discontinued.

A mild true vertigo often occurs in migraine. Petit mal is not associated with dizziness, though slight attacks of dizziness are often described as if they were epileptic in origin. In grand mal, dizziness may be present as a transient aura prior to convulsion. Nystagmus, tinnitus and hearing loss are not associated with either variety of epilepsy.

Summary

The clue to the correct therapeutic management of the dizzy patient is a thorough investigation before any therapy at all is instituted. Such an investigation includes a detailed history; a complete regional and general examination; certain special tests, including audiometry and the caloric test; a careful evaluation of the data thus secured; and a systematic consideration of the possible etiologic bases upon which dizziness or vertigo may arise. A practical routine for a comprehensive investigation has been described, and certain considerations of differential diagnosis have been discussed.

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705-710 Reymond Building

Poliomyelitis

This summarization, continued from last month, attempts to cover the essential information on the subject, including therapy, and is designed as a time-saving refresher for the busy practitioner.

Part 2

Personality and Polio One of the worst features of the average case of polio is the personality mal-adjustment[5] which arises as a reaction to the physical handicaps.

Three main responses should be considered: the first is the immediate withdrawal of the individual; the second is the absorption, often complete, with damaged self; and the third is a gradual return to reality in most. The time factor of each stage varies and depends as much on the physicians and families surrounding the patient and the handling of the case, as it does on the early press of previous environment on the inherited stuffs of personality. It must not be forgotten that the patient may be arrested at any stage or level of response.

Where a patient appears withdrawn, his personality appears to shrink to the observer although he will still respond considerably to those around him. In self-absorption, his family, his friends, and even doctor and nurse find it difficult to reach him anymore. Even in these times, the patient who is known to be persistent in his work and his goals makes the best recovery psychosomatically.

It is true that during the acute stages of polio trivial incidents will often take on an exaggerated importance. And those who have had to dance in attendance on these cases will pay special heed to this part of management. Reactions of terror and anxiety reach a crescendo somewhere about two to six weeks after the onset of the disease.

No over-all generalizations can be made at this point. Patients and parents react to the illness in a manner appropriate to their cultural backgrounds. This is noted later on when the family doctor may need to call in a physiotherapist to take over management. The parents may feel useless since they often revert to the pattern of a father and a mother with a helpless infant. Many parents will refuse to believe that their children will not recover completely.

It is often advisable not to have parents, as well as patients, associate with other polio cases during the very hectic period of the illness. It is better to give the family a feeling of social acceptance and of a body normalcy.

The problem of the severely-paralyzed patient cannot be separated from those of his family,[6] although he may

be. Various types of counselling and guidance are necessary and should be given generously and repeatedly. This is quite marked in the care of the respiratory polio case, where psychotherapeutic procedures seem to be of value in handling the prolonged anxiety and perhaps permanent disability.[12]

Through discussions with the family doctor, who should prove one of the best media for catharsis of feeling of guilt and resentment, the patient begins to change. He often starts to make healthy strides towards independence within the limits imposed by the disease.

In hospital, the patient may need to participate in group patterns of a healthier variety than now apparent. Staff relationships may need to be reviewed in the light of recent findings of the effect of the emotional climate on the progression of a healthy convalescence. Further investigations and studies are advisable.

Bulbar and Respiratory Paralysis

It may be wise at this time to detail the rarer yet serious problems of these severer aspects of some paralytic cases of poliomyelitis. This is not because the practitioner will be dealing with these cases very often or for any length of time.

Seiffert of Northwestern[10] makes the startling statement that the average physician is likely to see only one such case every five to ten years of the respiratory type. This has been calculated by dividing the number of cases by the number of doctors in an area. Since about twenty percent of upper-stem cases have bulbar involvement, the family doctor would only see one such case about every 25 to 50 years in his own private practice!

If and when such a case appears likely the physician should be doubly cautious in the early apprehension and protection against these complications. Hospitalization should be sought as soon as possible.

Meanwhile, every effort should be made to prevent aspiration of oral secretion and vomitus. Such patients should never be fed by mouth or gastric tube. The parenteral approach will have to be continued until the ability to swallow has returned. Suction apparatus and a tracheotomy set should be kept handy by the bedside. Some type of respirator should be available for emergency use as soon as possible.

As can be seen, most of these possibilities require a team of hospital workers.

The usual cause of death is respiratory failure or the complications of respiratory and vascular embarrassment in the worst type of cases.

It is necessary for clear ventilation of the lungs that there be an unobstructed airway, an intact respiratory center, and a healthy cardio-pulmonic system to feed oxygen and blood to the lungs and heart.[13] Treatment directed to improve only one facet of the obstruction may only result in further deterioration of the others.

Anoxia, along with carbon-dioxide retention and shock, need to be treated as part of the symptom-complex. Respiratory failure in polio, therefore, cannot be treated by the magic of a mechanical respirator alone.

At the bedside, the teamwork of trained nurse, doctor, anesthetist and surgeon becomes essential and, many times over, life-saving.

It must be remembered that in bulbar polio the brain centers of respiration and cardio-vascular regulation, in

addition to the lower cranial nerves, i.e., the 9th, 10th, 11th, and 12th nerves, may be involved to some degree or other. Fortunately, only 5-10% of polio paralytic cases have some bulbar complication.

Paralysis of the palate may be accompanied by a diagnostic nasal voice, inability to swallow properly with regurgitation and absence of the palatal reflex. These need to be watched for in the early case.

Poor respiratory excursion and chest weakness and pain may cause marked anxiety in a patient who may go on to further respiratory failure.

For those physicians called on to contribute their part to the hospital team, some workers have mapped out some principles of management:[2, 8, 10, 11, 12, 13] Quiet, unhurried confidence on the part of all staff members is essential to allay exhausting anxiety. Too many unnecessary visitors should be avoided. However, parents involved in the care and feeding of children seem to help psychologically. It is desirable to avoid repetitious examination and handling especially during the painful, spastic days. Suitable body alignment should be made by various devices, e.g., bedboards, sandbags, blanket rolls, etc. Barbiturate drugs should be avoided at the beginning. However, once the patient is afebrile and homeostasis is secured, sedation may be used to allay restlessness, anxiety and irritability.

While constipation is common, frequent loose stools may be dangerous and exhausting and may require some combination of antibiotics and binding medicinals. For fecal retention, small volume glycerine and water enemas or glycerine suppositories may be quite effective in the first ten days.

Because some form of urinary retention and bladder infection occurs in 15-20% of these cases, it may be wise to employ urinary antiseptics until thirty days after the final catheterization and the urine sediment has been reexamined. Intermittent catheterization may be required. It might prove worthwhile in prolonged retention to give

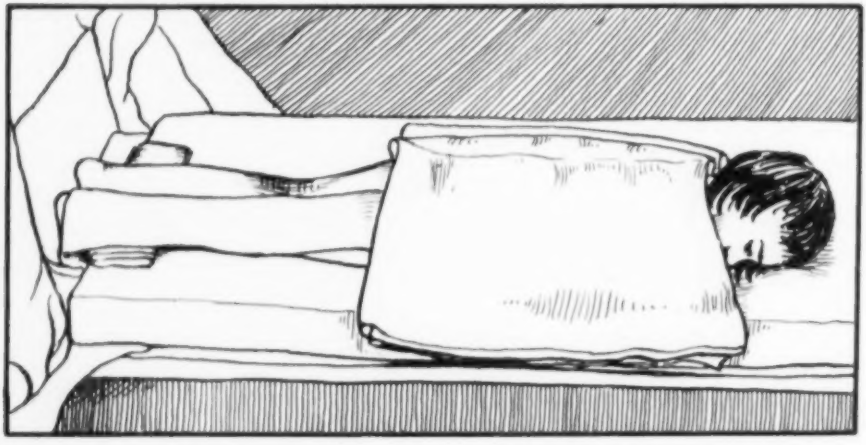


Fig. 1. Hot moist lay-on packs make the patient more comfortable and reduce the sensitivity and irritation of the muscles.

Furmethyde a trial, using small doses every 10 to 30 minutes. However, the patient should be closely watched during this and its use should be discontinued if there is little or no success.

The popular hot moist Kenny packs are useful in the early stage for muscle pain and spasm yet are cumbersome, time-consuming, and if continuous may be debilitating and dehydrating. The simpler lay-on type pack is just as effective. And they are all better omitted once pain and spasm disappear. Prostigmine has proved useful, as have the sympatholytic drugs, e.g., procaine hydrochloride intravenously, Priscoline hydrochloride intramuscularly and orally; and diethylaminoethanol hydrochloride orally.

Constant vigilance is required to prevent airway obstruction and the various agents and apparatus kept handy.

Unless the patient is unable to swallow or actually vomiting, light diet and fluid intake should be encouraged. The electrolytic balance needs watching and with much sweating or loss of fluids by vomiting or diarrhea, replacement parenterally is required. It is also advisable to maintain an adequate vitamin intake. For children, the vitamins may be in aqueous or other palatable forms along with appetite stimulants. Vitamins for adults may be in capsule form if swallowing is normal.

All those working with children should be alerted to report any change in voice, swallowing, rhythm of respiration, etc.

The use of various respiratory aids are often necessary and may require constant use at the beginning in the respiratory failures. The types of respirators include the tank, which is helpful but not very comfortable, the chest respirator which completely encloses the thorax which is not as efficient as the tank type but extremely useful for transportation of the patient, and the oscillating bed which can be used in removing the patient occasionally from the tank.

Some workers[5] emphasize that the type of mechanical automatic respirator is fairly important inasmuch as overventilation may cause a considerable amount of harm to the overloaded circulation. This is especially true in the acute stage or the first week of paralysis. Later, the circulatory system becomes adjusted to compensate for the positive pressures that are used. Anesthetic equipment also needs to be available for these cases in an adequate trained hospital set-up.[4]

Heroic measures may be required in some respiratory and bulbar cases with unrelieved airway obstruction. Tracheotomy is used more frequently than in the past. Heart stoppage and circulatory collapse have been treated by emergency cardiac massage and intra-arterial infusion. These have occurred a number of times in recent severe epidemics, with the number of lives saved being problematical.

Other expert managements are required for the extreme exhaustions, gastro-intestinal hemorrhage, dilatation and perforation, acute hypertensive pathologies and convulsions of various types. Rapid decalcification of bones, hypercalcemia, and renal calcifications may need to be combatted by passive intensive exercise and vitamins during early convalescence. Muscle substitution must be prevented if returning power is to be utilized by non-atrophied muscles.

The emotional readjustment, as well

as the physical rehabilitation here, often require special attention.

Medical Care and Management in General The increased incidence of all types of paralytic polio, because of the general increase of cases worldwide, among children and adults, makes it necessary for regional areas and districts to plan in advance for trained and equipped local medical teams.

It is the belief of some[16] that all cases of reported polio should be followed up carefully, the non-paralytic" as well as the paralytic types. Many mild cases of paralysis *may be found only by careful analysis* as well as adequate follow-up studies, with electromyography in suspicious problems. Shaw and Levin feel that some amount of muscular weakness results, and should be expected, in every proven (!) case of poliomyelitis. They state that most patients show some transient weakness when a clinical diagnosis can be established. The detection and adequate treatment of minor paralyses may significantly prevent later deforming sequelae, especially in the young.

Over a thousand young adults and children have recently survived the acute stages of polio in the United States only to be left with permanent or protracted respiratory muscle paralysis, with more or less complete superior or inferior plegias.[27, 28] Through realistic and timely planning much can be offered these severely disabled patients.

Adequate mental function, emotional stability and a useful place in the world are practical goals accomplished by specialized total care providing help with elementary medical, social and mechanical respiratory aids integrated. Muscle re-education can be coordinated with training equipment compensating for lost muscle functions. Once back in his home and district, the patient needs to have all these activities and follow-up supervised by his family doctor.

In the past decade it has become customary to hospitalize all patients with polio. This has resulted in a number of undesirable developments.

Often, useless referrals out-of-town have been made to "polio specialists" in many instances to avoid the emotional reactions of overanxious relatives.

It is the consensus of recent opinions [9, 10, 11] that the care of non-paralytic and mildly paralytic patients is best accomplished in the adequate home. In fact, it is very strongly felt that hospitalization is usually contra-indicated. Certainly it would seem desirable to revert to the individual management of these cases on a home-care basis wherever possible.

The advantages to the patients actually should be quite obvious as it produces less fatigue and exhaustion, both factors generally accepted as harmful influences on the course of the disease. The most restful place is his own bed. The most comforting person, mother or other close relative.

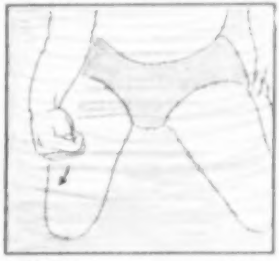
The alternative, as Batson so aptly states, is usually a hard hospital bed, considerable unavoidable noise, masked gowned and strange figures, flashing of lights, inflexibility of routines not individually adapted, and other emotional disturbing situations which necessarily arise during any type of hospitalization.

The danger of a patient developing life-endangering complications without the knowledge of the physician is negligible when relatives or attendants are given simple instructions. Of course, it is possible for death to occur in 36

Fig. 2. Muscle re-education aided by exercises under water. (Method of Prof. Denis LeRoy)

A. Hand movement—Flexion.

B. Finger movement—Flexion.



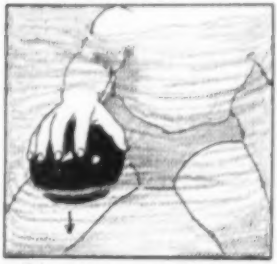
C. Cycling movement—First beat.

A1. Hand movement—Extension.

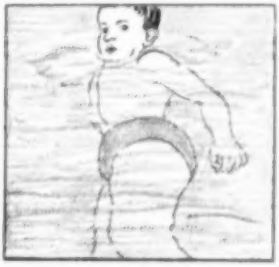
B1. Finger movement—Extension.

C1. Cycling movement—Second beat.

D. Arm movement—Ball floating on water.



E. Horizontal spin—Left handed.



F. Arm movement—Abduction.

D1. Arm movement—Lowering arm by pushing ball under water.

E1. Horizontal spin—Right handed.

G. Prevention movement.

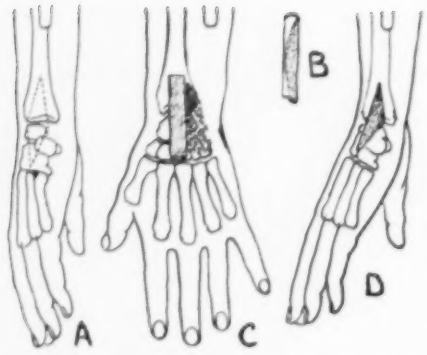


Fig. 3. Fixation of the wrist by a modification of the Smith-Peterson. (after Seddon)
A. Excision of ulna; **B.** Section for graft; **C.** Graft in position with buttress of bone chips; **D.** Graft holding wrist in dorsiflexion.

to 48 hours with overwhelming infections *but this is exceedingly rare.* Usually, these rapid deaths occur early in the fulminating types of infection.

In a recent series done by Batson et al. of approximately 120 patients treated in the home during one season no complaints were received, and only 6 out of these 120 patients had to be admitted to the hospital because of the extension of the disease. None had respiratory failure or extensive residual paralysis.

Again it is emphasized that whenever possible the family doctor should supervise the care of the polio patient, as he is best able to manage all aspects of the problem. The treatment of the non-paralytic and mildly paralytic patients requires no special equipment or knowledge that warrants hospitalization referral to cities.[11]

It is now generally accepted that 10 to 20% of patients thought to have non-paralytic polio may actually have other forms of encephalomyelitis. This itself may mean that they might pick up a polio infection by cross-contamination in being hospitalized.

The possibility of home contacts picking up the disease is very slight after the diagnosis has been made, than before. Actually, clinical symptoms of the disease may not develop to any degree in the home contacts, especially if proper aseptic techniques and handwashing are carried out. There is also often an extensive shortage of hospital beds which adds to the extended accessory costs of the illness.

There is no question that *patients with respiratory, bulbar or cranial involvement should be hospitalized immediately.*

In considering general treatment of the patient in any situation, it must be borne in mind that as yet there is no specific curative agent for poliomyelitis. *All therapy is symptomatic,* including the planning of the prevention of deformities in affected areas.

Re-emphasis, therefore, needs to be placed on the first and foremost measure: bedrest for the patient preferably in his own bed. For muscle pains and spasm, the various modalities of moist heat, previously mentioned, may be used and managed, including the occasional later use of the warm, hypertonic bath, under the training supervision of the family physician or relatives and attendants.

For the recently evaluated sign of hypertension, it may be desirable to use parenteral magnesium sulfate. However, this may fail. It is possible that some of the newer Rauwolfia derivatives, the methonium compounds, hydralazine or various combinations may prove the better and more helpful answer.

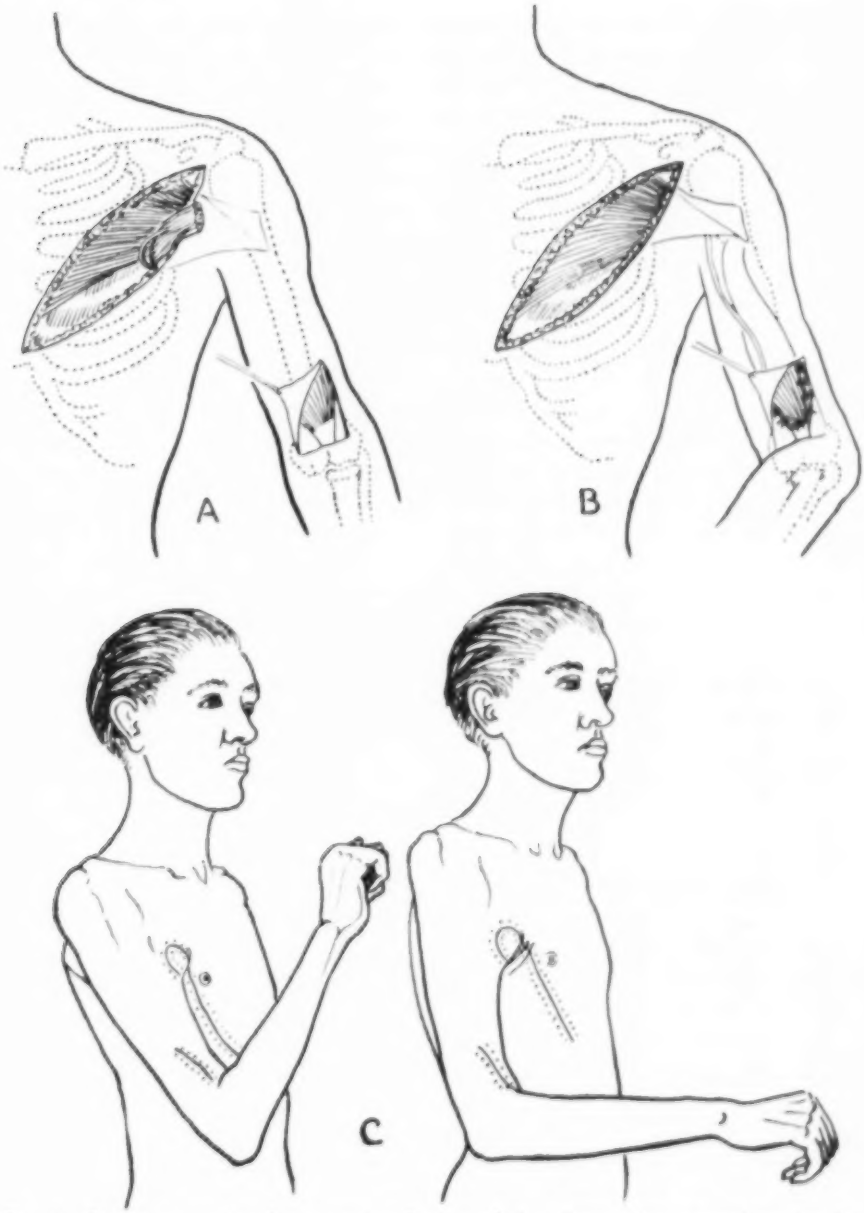


Fig. 4. Clark's operation for restoring flexion of the elbow using normal pectoralis major. (after Seddon)
A. Lower third of pectoralis major cut and reflected to show independent nerve supply.
B. Transplanted muscle.
C. Flexion obtained as result of operation.

In addition to moist heat, for muscle pain and spasm, the various analgesics may be employed successfully as adjuncts, with the sedative later on when the patient is afebrile—but not before when their use may mask and confuse the picture. For the occasional refractory night pain, the sympathicolytic drugs previously mentioned, or the use of intravenous procaine hydrochloride may be used.

Reassurance and quiet management and training of the patient's relatives and attendants helps to maintain the patient in a comfortable, cheerful, therapeutic environment. There should be novelty and change during convalescence in pleasant visitors, reading, music. Frequent changing of position should be encouraged to preserve the elasticity of muscle and the easy flow of the circulation.

As for any form of exercise or physical therapy, none should be attempted, certainly not until 48 hours after the fever subsides; and preferably not until a muscle evaluation has been done. This should clarify the planning for interesting, purposive muscle uses.

Gamma Globulin, while effective in the passive prevention of the disease, has little place in treatment. Most writers feel that its use for this purpose should be discouraged.

In home care and electrolytic balance shifts still need to be thought of and should be safeguarded where deficiencies are incurred by vomiting, sweating diarrhea or inadequate intake. Urinary output should be watched and any marked decrease requires diuretic management, as briefly outlined previously in this article. Urinary retention detection requires vigilance especially with children. The urinary antiseptics and the antibiotics should be remembered as well.

The antibiotics may need recall in the convalescent period, as well as in the acute phases of poliomyelitis, because of the general drop in the body resistance and the apparent increase in susceptibility to secondary infections. Sometimes the whole spectrum may need to be explored. Patients suffering with one type or other of respiratory weakness appear specially prone to develop concomitant bacterial invasions.

The therapeutic effects of cortisone were explored by Skanse in Scandinavia[41] in two cases, one acute and the other chronic. Some clinical and euphoric improvements were noted but no changes in the progression of the disease.

Another approach was attempted by Scobey[26] in cases treated from 1946 through 1948 with iodine compounds, ascorbic acid and calcium. He claims to have seen improvement in some of the cases as early as 24 hours after the beginning of his treatment. No later confirmatory reports have been made by other workers in poliomyelitis.

In discussing *non-paralytic poliomyelitis*, Steigman[42] re-emphasizes home management and care. However, he repeats some of the points raised in this article from another interesting angle. He states that this diagnosis is not usually made except during epidemic times, and suggests that these cases not be hospitalized to avoid fatigue, *and possibly to prevent throwing the patient into the paralytic state.* Manipulations and injections are best avoided, he maintains. Simple analgesics, mild sedatives, agreeable diet and bedrest until the patient has been fever-free for several days prove adequate. Constipation is not in-

frequent and may require attention. Over-exertion should be avoided for the ensuing two weeks. At this time, the patient should be completely examined to make certain that muscular weakness cannot be detected. This is important to prevent significant postural foot or spinal deformities at a later date particularly in growing children.

In urban practices the mild paretic or paralytic polio case may be handled at home. The psychological advantages for the patient are considerable

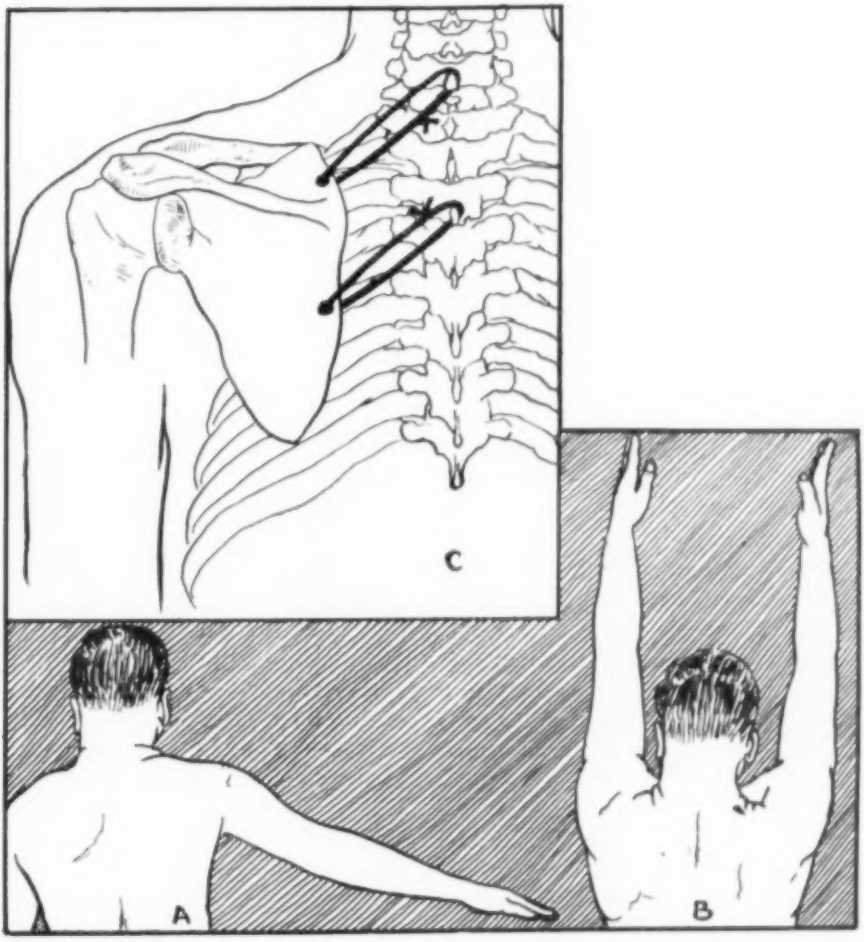


Fig. 5. Henry's operation to provide for arthrodesis of shoulder when trapezius is paralyzed.
A. Limit of active abduction before operation.
B. Full active abduction after operation.
C. Double fascial sling extending from the upper part of the medial border of the scapula to the cervical spine.

and are readily apparent. The physician will require a nice sense of judgment as far as hospitalization is concerned in any given instance.

However, because of the threat of possible extending paralyses in these cases, rural patients should be admitted to a hospital as soon as weakness is detected. In the afebrile period, the minor mild cases then should be sent back home.

Management of Deformities: Mustard[30] flatly states that deformities develop very quickly in childhood. Naturally, prevention is better than later attempts at repair and plastic restoration. There are only a few operations of choice.

As for operations about the hand, these should be done early: about six months post-polio, with the wrist perhaps not later than a year. Others may be postponed from 12-18 months if the muscles are kept supple.

Russell and Ficher-Williams[32] feel that the recovery of muscular strength after polio in the average case observed by them ran approximately 30-52 weeks to the ultimate point of strength in the previously paretic muscles. Clark,[19] in discussing prognosis of deformity in each phase of polio, remarks that it must not be forgotten that in the acute stage the effects of pain and muscle spasms appear to be paramount while the contraction of fibro-elastic tissue and muscle is not easily apparent. In the stage of potential recovery, the mechanics of uncorrected contracting tissue are elaborate and need to be considered dynamically. Muscle imbalance as a cause of deformity in bone structure is important and the surgical correction by tendon transposition is to anticipate and prevent them. He does not claim that all the deformities can be controlled by preventive surgery: but he maintains that the patient's contractural deteriorations can be halted which would continue otherwise without surgical help.

Advice to Parents Certain known aspects concerning poliomyelitis should be given to parents simply: (a) the virus is widespread and appears omnipresent in most of us who appear well (b) children are only slightly liable to clinical polio in the United States and Canada within recent years (c) overexertion and fatigue and chilling should be avoided by proper control of children, especially on summer trips (d) children should be kept away from known cases (e) the mortality rate is about 1% with many other contagions about the same or higher (f) with central nervous system involvement, less than 50% show paralysis (g) when the fever drops possibilities of paralysis disappear (h) many paralytic cases recover complete function (i) Gamma globulin appears to be of little use in household or casual contacts: its use in epidemic times for mass, passive immunization in a restricted regional area (isolated children's camp, island population, etc.) until an effective polyvalent vaccine is proved, as well as for pregnant women may be advisable.[1] The Salk vaccine trial may confirm the hope of an effective, multivalent, active immunizer this year—if not completely so, then just around the corner.*

*N.B. Medical Times was printed prior to the Scheduled release of the actual statistical findings. Advance reports however, seem to justify this hope.

At the two-day conference in New York in January of this year Dr. Salk reported his belief that the immunity conferred by his vaccine might be very long-lasting, for it has been demonstrated that it stimulates antibodies in the blood, which effect may be enhanced by booster shots.

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"MEDICAL TEASERS"

A challenging crossword puzzle for the physician

page 43a

Lipoid Pneumonia In A General Hospital

THEODORE WINSHIP, M.D.
Washington, D. C.

The aspiration of oil into the alveoli of the lungs sometimes results in a chronic pulmonary condition known as lipoid pneumonia. Since it was first reported in 1925 by Laughlen[1] the literature on the subject has become extensive and the disease is well described in the current text books.[2, 3] Despite the known dangers of oily preparations many types are available to anyone for self-medication, without prescriptions, and oily medications are still being prescribed by certain physicians.

The incidence of lipoid pneumonia cannot be determined accurately, but its frequency of occurrence is directly related to the current interest in the disease. Pinkerton,[4] Ikeda,[5] Cannon[6] and many others found lipoid pneumonia to be rather common yet in many hospitals the disease is not recognized. Prior to 1948 the diagnosis of lipoid pneumonia has been made only once at Garfield Memorial Hospital but since that time 36 patients with this disease have been diagnosed and treated. Eight of these patients were considered to have a primary malignant pulmonary lesion and were operated upon,[7] and eight patients died of their disease and came to post mortem.[8] The remaining patients were treated medically and are still living.

The amount of oil necessary to produce changes in the lungs varies considerably. Some individuals are able to take large quantities over long periods without apparent harm, while the lungs in other cases respond promptly to small amounts of oil. One patient is known to buy mineral oil by the gallon and claims that he has taken "a swig" of it twice daily for over 20 years. He is still living and is apparently well. Another patient had used approximately one ounce of oily nose drops a month for only one year. In her case a diagnosis of lipoid pneumonia was made on admission to the hospital and later confirmed at autopsy as the cause of death.

The first cases ever reported[1] occurred in three children of less than three years of age, but the disease is most common in the aged who take mineral oil for the relief of constipation.

Lipoid pneumonia in children is usu-

From the Department of Pathology, Garfield Memorial Hospital, Washington, D. C.

ally due to the ingestion of fish oils or milk, and it is most frequent among children who struggle during feedings or in those with defective deglutition. The tissue reaction to animal oils is prompt and necrosis occurs in proportion to the type and amount of the substance aspirated. This is associated with inflammation, the formation of giant cells and frequently an insoluble acidophilic alveolar lining membrane. Foci of involvement are usually localized and healing eventually takes place if tissue damage is not too great, and if intercurrent infection does not occur. Several cases of lipoid pneumonia showing typical changes have been seen recently at Children's Hospital, Washington, D. C.

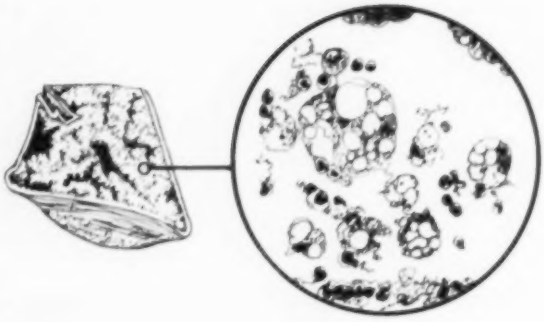

Fig. 1. The gross and microscopic appearance of the lung in lipoid pneumonia.

In the gross the affected areas are gray or yellow, moderately firm and projecting slightly above the plural surface.

The microscopic picture shows the alveoli filled with large phagocytic cells distended with oil droplets.

In adults the disease is usually produced by mineral oil or oily nose drops, and is more chronic than in children. Small quantities of bland oil taken either orally or nasally run down the pharangeal walls directly into the bronchi and alveoli without producing a cough reflex. This is more apt to occur in patients forced to be in a recumbent position and in patients who take their medication immediately before retiring. Once in the alveoli the bland oils are emulsified and phagocytosed. Only minute amounts are removed mechanically by coughing. Portions of the remaining oil are carried by phagocytic action into the lymphatics of the alveolar walls. This apparently elicits a lymphocytic infiltration which thickens the alveolar walls and entraps many of the fat-filled phagocytes. The alveolar lining cells respond to the foreign material by becoming enlarged and cuboidal. As the alveolar walls are gradually replaced by fibrous tissue the alveolar lining cells desquamate and form conglomerate masses. This explains why patients with lipoid pneumonia die of asphyxiation.

The following case reports illustrate some of the more important aspects of the disease.

Case No. 1 A 64-year-old white man was admitted to Garfield Memorial Hospital following a routine physical examination which had revealed a lesion in his right lung. The patient had no symptoms. Additional roentgenograms showed a large poorly outlined mass in the region of the right lower lobe which was thought to be neoplastic. Bronchoscopy revealed thickening of the bronchi in the involved segment of lung. Cytology was negative and cultures for tuberculosis showed no growth. At operation the right middle and lower

lobes were resected. In the lower lobe and the inferior portion of the middle lobe was a poorly outlined, firm rubbery grayish-yellow mass measuring 6 cm. in greatest diameter. Microscopically the lesion consisted of masses of edematous fibrous tissue interspersed with partially collapsed alveoli. Deep in the fibrous tissue were many fat-filled phagocytes, lymphocytes and a few plasma cells. The alveoli contained giant cells and a few lipophages. They were lined by cuboidal cells or thick bands of fibrous tissue. After the operation it was found that the patient had used large quantities of mineral oil for many years to combat constipation.

Case No. 2 A two-year old boy was admitted to the hospital because of fever and cough. Development was obviously retarded, there were findings suggestive of rickets, and there was a history of almost daily vomiting. A diagnosis of pneumonia was established. Roentgenograms of the chest were suggestive of aspiration pneumonia. After antibiotic therapy the child recovered and was dismissed. Following this episode the child was readmitted three times for the treatment of pneumonia. Roentgenograms showed a progressive fibrosis which, though bilateral, involved the right side primarily. Death occurred during the fourth admission and histologic sections of the lungs established the diagnosis of lipoid pneumonia. Special stains showed the presence of animal oils, presumably cod liver oil or milk, and some type of vegetable oil.

Case No. 3 A 52-year-old Negro woman was admitted to the hospital complaining of a productive cough and progressive dyspnea. Physical examination was not revealing except for bilateral bronchovesicular breathing and fine moist rales. Roentgenograms on admission showed bilateral nodular confluent densities suggestive of lipoid pneumonia. Films taken ten months earlier were obtained for comparison. Similar densities were present but were considerably smaller at that time. After careful questioning it was discovered that the patient had been addicted to oily nose drops containing cocaine for more than five years. A diagnosis of lipoid pneumonia was made and the patient was cautioned about continuing the use of nose drops. She was readmitted to the hospital after being at home for four weeks. A diagnosis of bronchopneumonia was established and antibiotic therapy was begun. The patient died after five days of treatment. Autopsy revealed the typical rubbery yellowish-gray lungs and a superimposed bronchopneumonia. Fat stains confirmed the diagnosis of lipoid pneumonia.

There are no clinical signs by which a diagnosis of lipoid pneumonia can be made. Five of the eight patients with lipoid pneumonia who were operated upon for suspected malignant tumors had no symptoms, their lesions being discovered during routine examinations. Productive cough was the most common symptom but no single complaint was common to all patients. Other complaints elicited were dyspnea, chest pain and hemoptysis. Clinical laboratory tests served only to rule out other diseases.

The ages of our patients ranged from two years to 72 years. As in larger series of cases the sexes in our group were almost equally divided. In 82% of our patients the right lung was involved, this being due presumably to

the anatomic differences between the two lungs. According to the histories obtained the disease was produced by mineral oil in 19 cases, by nose drops in 9 instances and by aspirated milk and cod liver oil in 2 instances. Cocaine was combined with nose drops in two physician patients and three others.[7] No history of oil was obtained from one patient.

The roentgen appearance of lipoid pneumonia is produced by fibrosis and consolidation. By means of a Bucky film and a fine focus tube an area of apparent consolidation can be shown to contain air and to present a spun glass appearance. The lower lobes, particularly the right, are the usual sites of the disease, but the upper lobes may be involved.

The diagnosis of lipoid pneumonia may be established on the basis of a satisfactory history of the ingestion of oil, consistent roentgen findings and the finding of oil within phagocytes in the patient's sputum. Some care must be taken in the collection of sputum. It must be obtained from the bronchi and not the nasopharynx. It should be collected before breakfast in a clean glass container. Sputum smears are positive only when particles of sudanophilic material are present within phagocytes. Extra-cellular fat is of no significance.

Summary

There are no effective methods of treating patients with lipoid pneumonia and no means of evacuating oil from the lungs has been found. Those who have symptoms can only be treated symptomatically and advised to stop the use of oily medications. Three patients in this series have improved clinically after discontinuing the use of oil. The best treatment is prevention.

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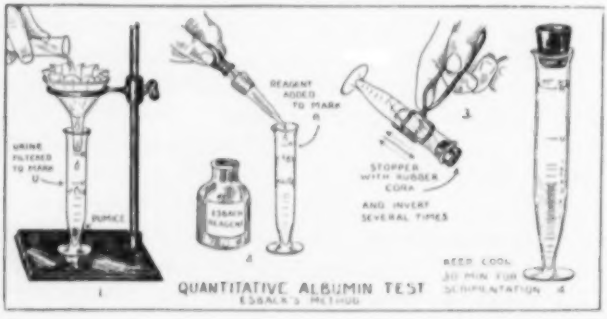

Rehabilitation of Hemiplegics

ALBERT FIELDS, M.D.
Los Angeles, California

"Rehabilitation: The art of restoring to a previous condition: to set up again in proper condition." —Shorter Oxford English Dictionary

In the United States today there are over one million victims of cerebral-vascular accidents (CVA) or "strokes." Increase in age level of our population and in life expectancy, with a higher incidence of arteriosclerosis and hypertension, will add to this figure.

In the treatment of a stroke patient we are concerned first with saving the patient's life and then restoration of maximum function. The second goal must be kept in mind from the very beginning of treatment.

With proper management from the outset chances of survival from a "stroke" are greatly increased and many of the complications can be prevented. 80% of hemiplegics can be restored to self-care and 20% to some gainful employment.

The majority of fatalities occur within the first few hours; 75% of all fatalities are within the first two weeks; another 20% of fatalities within the next two weeks. Prognosis is much better in thrombosis than in haemorrhage: lower immediate mortality, greater extent of recovery and 15 times longer survival time. Survival time is longer in the 30-40 age group and slightly longer in females than in males.

Mortality and morbidity are also influenced by location, size and number of lesions involved, previous "strokes," persistent flaccid paralysis, obesity[1, 2] and associated conditions. Mortality is almost doubled (from 32% to 57%) if the patient also suffers from nephritis, diabetes, syphilis, toxemia of pregnancy, cerebral tumor, hyperthyroidism or cardiac disease[3].

It is beyond the scope of this paper to present a detailed account of treatments during the "acute" phase—first two weeks. Maintenance of airway, of fluid, mineral, vitamin and protein balance[2], care of bowel, bladder and skin, position change, support and manipulation of limbs[4], adequate sedation and care with medications are mandatory. During the acute phase it is impossible to treat a stroke patient without skillful nursing care[5].

There is disagreement as to the value of stellate ganglion blocks. There are several reports of unilateral stellate ganglion blocks performed within two to twelve hours after an acute cerebral

thrombosis without significant changes in cerebro-vascular resistance flow or oxygen utilization. In other studies bilateral stellate blocks produced no change in cerebro-vascular resistance (CVR) or cerebral blood flow. Some believe that stellate ganglion block might even produce a decrease in cerebral blood flow by directing more blood to the skin and subcutaneous tissues of the face.

Despite the conflicting reports it is rational to employ sympathetic blocks in vascular damage. Lériche, the great French investigator, has described the reflex vasospasm following damage to blood vessels in the extremities[6, 7, 8]. Similar changes probably occur in the brain in response to embolism, thrombosis or hemorrhage. If the spasm is prolonged ischemia, edema and oxygen lack will produce damage to a greater area of brain tissue than that directly affected by the vascular impairment.

Elimination of vasospasm and reduction of cerebro-vascular resistance (CVR) by cervical sympathetic block help restore partially damaged cells and thus reduce the extent of brain tissue destruction. There are several factors involved. Relief of vasospasm and improved venous flow reduces local cerebral edema. Relief of arteriospasm and opening of potential collaterals results in improved arterial flow so that the damaged brain cells are provided with the urgently-needed oxygen. Reduced intracranial pressure, stimulation of cardio-respiratory centers and improved cardiac action provide a greater "head of blood pressure" and thus aid cerebral blood flow.

Rather than single or frequently repeated stellate blocks this author prefers prolonged or continuous middle cervical sympathetic blocks. In old as well as in recent cerebro-vascular accidents there have been many good results. This technique has been used with benefit in a variety of head, neck, chest, shoulder and upper extremity disabilities[9, 10]. Scientific medicine calls for skepticism of panaceas. Yet the gratifying results of prolonged sympathetic blocks in so many instances should not be attributed to coincidence[11].

In selected patients with acute cerebro-vascular accidents there are indications for intra-carotid injections with vasodilators, (dehydrogenated ergot®) anticoagulants and perhaps enzymes. Positive pressure oxygen with 5% carbon dioxide and aerosol detergents, phlebotomy or artrenol, transfusions and shock therapy may be life-saving. Intravenous Novocain, anticoagulants, cardiac drugs, cerebral vasodilators and cortisone may be of great benefit.

Hydrotherapy, manipulations, massage with vasodilator ointments, proper placing of sandbags, and footboards, pulleys for "reciprocal movements," and other forms of physical therapy[4] should be instituted at once. Even more important are early ambulation, exercises against increasing resistance and constant encouragement in use of increasingly complex occupational therapy devices[5]. Prompt restoration of self-care and of maximum function is the most essential part of therapy.

Patience and kindness are required by all, even by those rare individuals with 100% intact bodies and sound minds. So much more does this apply to patients with disabilities such as some degree of paralysis. A tremen-

dous blow to the ego has been sustained. The patient feels apprehensive, anxious, insecure and afraid of another stroke.

The hemiplegic, like many individuals with other disabilities, resents his dependence on others and at the same time can quickly get used to being dependent and having others wait on him. As rapidly as possible there must be minimum dependency on others. The hemiplegic must be persistently taught and repeatedly encouraged to utilize each new skill with increasing participation in family, household and group activities. A day-to-day record of accomplishments and goals (Tables 1, 2) provides added incentive.

Even with partial residual incapacity the hemiplegic must be trained for maximum utilization of body and mind. With realization that full restoration is impossible, discouragement and lack of cooperation can readily develop. The patient and family must make a realistic appraisal of deficits.

Optimistic persistence is the basic element in restoring the handicapped individual to social and economic productivity. With insight as to factors contributing to disability there will be increased optimism on the part of the general public, family, nurses, attending physicians. Physical, emotional, social, economical and vocational sequelae can be mitigated by early institution of a comprehensive rehabilitation program. Despite disabilities, many hemiplegics can be helped not only to self-

Table I—Self-Care

	Below 16% 0	16%-32% +1	33%-60% +2	61%-84% +3	85%-100% +4
1. Change position in bed					
2. Feed self					
3. Wash hands and face					
4. Brush teeth and comb hair					
5. Write name and address					
6. Use telephone					
7. Sit up for six hours					
8. Get from lying to sitting position					
9. From sit on bed to stand					
10. Tie pajama bottoms					
11. Put on and take off shoes					
12. From bed to wheelchair to bed					
13. Sit and arise from armless chair					
14. Put on and take off pajama bottoms					
15. Put on and take off pajama tops					
16. In and out of chair at table					
17. Shave self					
18. Pick object off floor					
19. Use toilet without assistance					
20. In and out of car					
21. Tie shoes					
22. Put on and take off braces					
23. Clothe self completely					
24. Take bath without assistance					
25. Get from floor to stand					

— after Leemhuis and Brown[17]

Table II—Ambulation

1. Arise and stand with aid in parallel bars					Below 16% 0
2. Arise and stand without aid in parallel bars					
3. Shift weight from foot to foot in parallel bars					
4. Walk in parallel bars with assistance					16%-32% +1
5. Walk in parallel bars without assistant					
6. Walk with assistance of instructor					
7. Walk without assistance, instructor by side					
8. Arise to stand from wheelchair without aid					
9. Walk alone using crutch or cane					33%-60% +2
10. Climb stairs with railing					
11. Climb stairs with railing backwards					
12. Walk sidewards and backwards					
13. Walk alone using cane					
14. Walk on ground and carpeting first					
15. Open and close door from stand					
16. Climb bus steps					61%-84% +3
17. Climb curb					
18. Climb steps without hand rail					
19. Discard wheelchair					
20. Distances (feet)	25	50	75	100	
21. 48 feet seconds	85	80	75	70	
22. Distances (feet)	150	200	300	400	85%-100% +4
23. 48 feet-seconds	65	60	50	45	
24. Distances (feet)	500	600	700	800	
25. 48 feet-seconds	40	35	30	25	

— after Leemhuis and Brown[12]

care, but to gainful employment and an independent life. This is the aim of rehabilitation therapy.

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938 Pacific Mutual Building

Rehabilitation of the Disabled Worker

FERDINAND F. SCHWARTZ, A.B., B.S., M.D.*
Birmingham, Alabama

"Anxiety is the universal disease in our time. Probably at no other time in history were so many millions of people more conscious of the fact that anxiety is widespread, that insecurity is commonplace, and that fear of the future is a universal phenomenon". Ebaugh

In the life of the average working man there is nothing more serious than the loss of his earning capacity. A serious injury with prolonged disability stamps a deep imprint not only on the worker but on his family and his entire home life. He is entitled to the best possible treatment from the very onset of his injury or disability.

Crippling defects create an emotional load which burdens his very existence in the economical, social and competitive society. Whatever his reactions are may depend very largely on our own reactions to his problems. The common emotional feeling toward the disabled is pity and an occasional vague sympathy. The patient, being very sensitive of his condition with prolonged days of hospitalization, will develop atrophy of ambition and the will to get better. Time will conspire against his normal judgment, spider webbing his mind with a dark lace of despondency, economic worries and picture of privation of his beloved ones. A heavily burdened heart will out-cry against unsympathetic management and will eventually open its gate to the persuasive tongue of easy money resulting in numerous law suits we are witnessing today.

Industry has become aware of the part played by physical medicine and rehabilitation in the restoration of functions to the injured workers, but I am afraid that the awareness is far from being universal. A rehabilitation program with team work is the ideal approach for the treatments of industrial disabilities, paving the road toward health, happiness, work, income and self respect.

The American way of life is self-respect and economic independence. No worker would give up his pay envelope for the meager sum of charity. He wants to face his family with pride and

* Associate Professor of Clinical Medicine, Medical College of Alabama, Birmingham, Alabama. Director of the Birmingham Institute of Physical Medicine and Rehabilitation.

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joy in providing their every day necessities of life. We cannot fail them because they do represent the very essence of the great industrial giant—production.

Our first duty to them, as physicians, is to guide them toward physical and mental health. We have the greatest medical armamentarium on the face of the earth but we must share it with the injured workers. We must instill in the patients the feeling and sincerity that we are deeply concerned with their problems and not only with their physical disability but with their social, spiritual, economic and family problems.

In industrial disabilities just as in any other disabilities we must help the worker to regain his lost muscle power, joint motions, lost confidence and above all the ego.

The types of cases most often encountered in plants are fractures, sprains, strains, backaches, amputations of one or more upper and lower extremities, traumatic injuries to hands and fingers, shoulder pathologies and aches and pains due to arthritis. Shoulder pathologies are numerous especially in workers who are lifting heavy objects or operating levers. During the period of two fiscal years, from October 1, 1948 to September 30, 1950, the Division of Workmen's Compensation of the state of Alabama reported 1,239,185 man-days of lost working time. During this period the permanent partial injuries constituted 9 percent of all non-fatal injury claims that were settled within one fiscal year. Of the total of these permanent partial disabilities, over sixty percent consisted of finger injuries; the next largest group over 10 percent—involved toe and foot injuries—represented nine percent of the total.[1]

The loss in man-days of working time appears to be appallingly large in relation to the fact that the majority of these injuries involved only some of the digits. Couldn't these workers be placed on jobs where the uninjured extremities would perform the work? Injury to one finger will not disqualify them to earn a living.

A worker may be classified as totally disabled for a specific and skilled job he has been performing but was he or is he totally disabled as far as earning capacity is concerned? The answer is definitely no. Proper reclassification of his job and his physical adaptability together with the proper physical medicine regimen could have solved the problem. One infra red lamp or an old diathermy administered by an untrained person is not physical medicine or rehabilitation. Where there is a qualified doctor in physical medicine available he should be an integral part of the medical team of the plant. The close cooperation among orthopedics, neurology, neurosurgery, internal medicine, social workers, nursing and physical medicine would save millions of dollars for industry and salvage thousands of workers from chronic illnesses and welfare rolls; thus contributing not only to the benefit of industry but also to our country, state and municipal government in having good and patriotic citizens contributing to the upkeep of the government. I am certain that everybody is willing and happy to support our country in paying their share for the preservation of our great democracy and heritage.

To quote Dr. A. R. Thomas of England, "Certain aspects of rehabilitation

have an important bearing on the success of any industrial scheme. Stated briefly, they are as follows:

1. Accurate diagnosis followed by a plan for treatment which should be carefully explained to the patient himself in order to secure his full cooperation.

2. Rehabilitation is an essential part of the treatment, and should commence immediately with the injury sustained.

3. The treatment should be personal and individual, every aspect of the patient's welfare receiving consideration so as to allow for his absorption back into normal working community as smoothly and with as little delay as possible. In the case of less severe injuries, the patient should be encouraged to remain at work and to concentrate on recovery rather than compensation. The therapeutic value of useful work, which never allows the injured person to pass out of real life of the factory is a great incentive toward recovery. Moreover such a regimen relieves monotony and boredom, creates a sense of responsibility in the patient."[2]

There are a few equipments which are essential in maintaining a well ballanced physical medicine department in a plant, such as short wave machine, luminous and non luminous infra red, baker, a paraffin bath, vibro bath, sinusoidal machine and ultra violet generator. Hot moist compress pads, chemically treated, are also a good adjunct in managing sprains and strains. Exercising apparatus and tables could be manufactured by the plant carpenter shop as the necessity arises. Home treatments, carefully prescribed, could be carried out by the patients without any expenses.

Treatment may be given at the plant during working hours with regular appointed schedules in the less severe cases. Evidence of doing something for the patient together with his per-

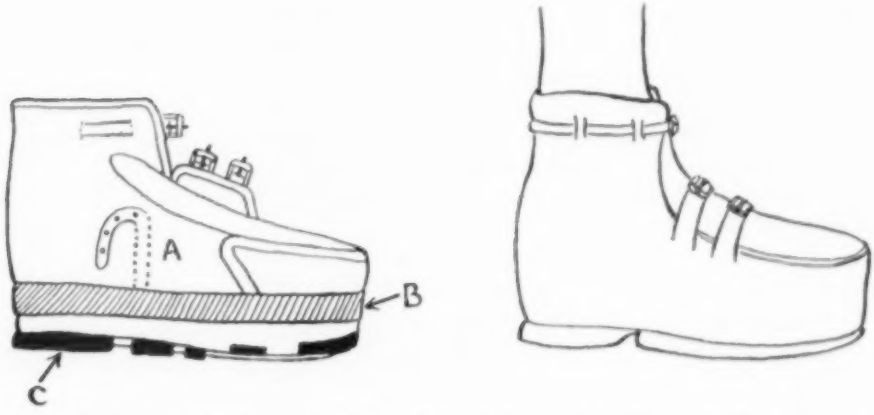

Fig. 1. Inner and outer appearance of boot designed by Dr. A. R. Thompson to be worn over a plaster cast.

A. Strap incorporated inside boot to secure the plaster cast firmly within.

B. One-inch sorbo rubber covered with scrap leather.

C. Hard rubber placed in elmwood sole.

sonal observation of improvement will hasten recovery and will motivate him for the proper usage of his musculature which otherwise may undergo atrophy of disuse and favor contractures. It is always easier to prevent deformity than to correct it.

Treatment at the Plant

Sprains Cold application for the first twenty-four hours with proper supportive bandaging. Patient should be encouraged to use his extremity and wear his shoes rather than slippers. After twenty-four hours contrast bath may be employed.

Fibrositis Heat in the form of moist packs, infra red or baker applied from ten to thirty minutes at the proper distance followed by gentle massage for five minutes. If the hand or foot is involved then contrast bath or paraffin bath is used. Paraffin bath should be 125 degrees F. and ten dippings are necessary. In the application of any sort of heat two conditions must be kept in mind, namely, heat sensitivity and peripheral vascular diseases. Of course heat must be carefully applied in patients having diabetes mellitus.

Backaches If after a careful examination and evaluation organic causes are ruled out then heat in the form of short wave, infra red or moist packs is to be applied, having the patient in a comfortable position, heat to be followed by massage and exercises. Occasionally orthopedic supports will help the patient. In applying short waves a few necessary precautions should be observed, namely, no metal in field of treatments, time element, amount of heat, pregnancy, menstruation, peripheral vascular disease, and the proper placements of the electrode. The patient under short wave therapy should never be left alone. Home prescription of proper bed, sitting and standing posture should be prescribed.

Ultrasonic therapy has been employed in backaches with excellent results but it must be applied with caution and by an experienced person.[3]

Since a great amount of backaches is due to muscle spasm superimposed on old osteoarthritic joints the importance of bad posture causing stress and strain should be evaluated with the patients. Workers should be instructed through lectures and bulletins on the necessity of correct working, sitting and standing postures together with distribution of the fulcrum in lifting.

Torticollis Application of ultrasonic energy is almost miraculous. However where ultrasonics is not available the application of moist heat with gentle massage is employed.

Severance of Soft Tissue of Distal Phalanges Application of ultraviolet rays helps rapid healing without plastic surgical procedure as reported by Dr. J. Weiss.[4]

Scars Dr. Bierman reported excellent results in contracted scars with the application of ultrasonic energy.[5]

Fractures Exercises can be carried out by the patients to uninvolved joints, such as in Colles fracture. The shoulder and elbow joints should be exercised. If the patient is in cast, the parts exposed can be exercised and even under cast, the quadriceps can undergo setting exercises. Just because a patient sustained a fracture of one extremity there is no reason why he could not earn his bread with the other extremity. In other words, fracture of the tibia should not prevent the patient from employing

his upper extremities. Life is motion, inactivity is stasis.

To shorten disability in fractures of the lower extremity the patient is instructed in proper standing balance, crutch balance and finally in crutch walking. Exercises to maintain erect position is given while the patient is confined to bed; the upper extremities exercised extensively in order to have the necessary strength to support the body on crutches when the patient becomes ambulatory.

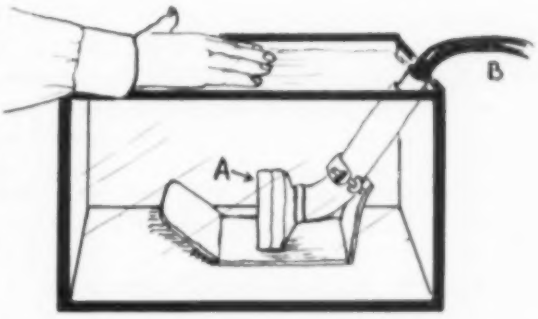

Fig. 2. Ultra sound treatment to hand through water bath.

A. Transmitting face (metal plate over vibrating quartz).

B. Connection to generator.

For treatment directly through skin a thin layer of oil or water is interposed. Water applicators of various sizes and shapes or rods for cavity treatment are attachable to treatment head. (after Kovacs)

Knee Instabilities Sometimes the most dramatic results are obtained through heavy resistive exercises in knee instabilities due to injuries to the anterior cruciate ligaments, tibial collateral ligaments, anterior and posterior cruciate and fibular collateral ligaments. A number of meniscectomies have also been benefitted with heavy resistive exercises as described by DeLorme.

The exercises are performed on a table with a small hard cushion placed under the knee. Resistance is offered with weights or iron plates attached to an iron shoe which is strapped to the shoe. The leg is extended and flexed at the knee joint with rhythmical motion. The exercises are carried out once a day with ten repetition for five days during the week. Then the following week more weight is added.

Shoulder Syndromes The bête noire of the doctors, especially the so-called bursitis cases with or without calcified deposits. In the acute cases the application of a cold compress to the area of maximum pain and a supporting sling for the upper involved extremity will afford some comfort to the patient. In the subacute cases, the application of heat, low voltage current and passive and active exercises are prescribed. Recently I reported 29 cases of bursitis with calcified deposits treated with ultrasonic energy. The acute pain subsided after the second or third treatments and twenty-seven cases made an uneventful recovery with either complete disappearance or greatly reducing the amount of the calcium deposits.[6]

Spondylitis; Instructions in maintaining proper posture will aid in reducing deformities. Luminous heat, followed by massage and exercises, is prescribed daily. Bed posture should be observed carefully. Ultrasonic energy affords great relief from pain before complete fusion takes place.

Asthma Correct breathing exercises

as worked out by the Asthma Research Council of England will benefit the asthmatic patients.

The objectives of the exercises are:

1—To increase the expiratory phase of respiration

2—To increase the capacity and function of the lower thorax in respiration

3—To mobilize the joints and relax the musculature of the shoulder girdle, shoulder joints and cervical region

4—To improve the posture of the patient

5—To master diaphragmatic breathing.

The exercises may be given three times a day for ten minutes. If the patient anticipates an attack, the exercises should be started immediately.

Treatments in the Hospital

Amputation The surgeon's responsibility does not end with the severance of the parts involved. Careful bandaging of the stump, prevention of flexion contracture and preventing atrophy of the muscles are important factors in the management of the amputee. Carefully and well fitted prosthesis, standing balance, crutch balance and gait training should be undertaken under supervision. At no time should the psychological aspect of the patient be forgotten. I admit that the treatment might be time consuming but the end result compensates for all the effort. Again, team work between the orthopedic surgeon and the physiatrist helps the rehabilitation of the amputee.

Nerve Injuries Peripheral nerves are often involved in traumatic injuries, fractures and in contusions. It is important both for the management and for the patient that a careful electrodiagnosis be performed in order to ascertain whether the nerve is completely severed or partially. It may be just a contusion but electric diagnosis will differentiate the status of the nerve. Occasionally one encounters a hysterical paralysis. In this case, the legal aspect is of paramount importance, therefore the differential diagnosis between true nerve injury or functional paralysis is of utmost importance.

Hemiplegia Good bed posture, proper standing and supporting together with electric stimulation, passive exercises and orthopedic support will shorten the disability. Motivation, occupational therapy, early ambulation will aid the patient's will to live and be useful to himself and his community.

Bell's Palsy Reaction of degeneration test will ascertain the prognosis. If the nerve reacts to Faradic current then the prognosis is good for early recovery employing heat, exercise and electric stimulation. These treatments could be given either in the plant or in the office and patient does not have to be hospitalized.

Rheumatoid Arthritis Team work of the internist, orthopedic surgeon and the physiatrist will help the patient. Proper bed posture, proper splinting, in the acute stage is important. In the subacute cases the application of contrast bath, paraffin bath, and exercises are helpful. The patient is encouraged to use his extremities in order to prevent deformity. Proper wheel chairs with adjustable foot rest will prevent knee contractures. Shoes and crutches will aid in maintaining correct posture.

Conclusion

1. In the field of industrial medicine physical medicine and rehabilitation plays an important part.

2. Team work is essential to reduce industrial disabilities and to get the worker back to work.

3. The economic and psychological factors are important in recovery.

4. Minor injuries are needless disability and the worker could be assigned to a job compatible with his physical condition.

5. Do not dislocate the injured worker from his productive surroundings but treat him at the factory during working hours.

6. Physical medicine and rehabilitation should be under competent supervision in order to accomplish the maximum benefit.

7. Careful physical examination and evaluation is essential to both industry and the workers before they are placed on the job, especially today with a great increase of our aging population.

8. Life is motion and stasis is pathology.

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916 South 20th Street

AN EXERCISE IN DIAGNOSIS— THE CASE REPORTS

IN addition to our regular quota of original articles, "Refresher" articles and departments, this issue, and every issue, contains selected Case Reports from the Clinico-Pathological Conferences at New York University-Bellevue Medical Center. You will find them on pages 415-420. We recommend these studies as interesting and stimulating.

Psychosurgery

A Five Year Follow-up Report on 200 Patients

BENJAMIN POLLACK, M.D.*
Rochester, N. Y.

Psychosurgery is a name of recent origin, but actually attempts have been made since ancient times to treat mental disorders by brain surgery. If any of you have ever seen skulls of ancient Indians and other primitive people, particularly of South America, you may have noticed that there were holes in the skull made by grinding with stone in an attempt to make an opening for the evil spirits to be released. It was also believed by others that mentally ill people were spiritually endowed by good and were sacred and protected by a deity. Thus, we have these two extremes—a person possessed of evil and a person endowed with good.

Historically, the emotional changes which have followed frontal lobe ablation in monkeys were scrambled with the learning deficits very much as has been the case with frontal lobotomy in man. David Ferrier in 1875 gave a brilliant description of the effects of orbitofrontal ablation in monkeys, writing as follows:

"The experiments show conclusively that an animal deprived of its frontal lobes retains all its powers of voluntary motion unimpaired, and that it continues to see, hear, smell, and taste, and to perceive and localize tactile impressions as before. It retains its instincts of self-preservation, retains its appetites, and continues to seek its food. It is also capable of exhibiting various emotions. The result, therefore, is almost negative, and the removal of a part of the brain which gives no external response to electric stimulation exercises no striking positive effect; and yet the facts seem to warrant the conclusion that a decided change is produced in the animal's character and disposition. For this operation I selected the most active, lively, and intelligent animals which I could obtain. To one seeing the animals after the removal of their frontal lobes little effect might be perceptible, and beyond some dullness and inactivity they might seem fairly up to the average of monkey intelligence. They seemed to me, after having studied their character carefully before and after the operation, to have undergone a great change. While conscious of sensory impressions, and retaining voluntary power, they, instead of being actively interested in their surroundings, ceased to exhibit any interest in aught beyond their own immediate sensations, paid no attention

* Assistant Director Rochester State Hospital, Rochester, N. Y.

to, or looked vacantly and indifferently at, what formerly would have excited intense curiosity, sat stupidly quiet or went to sleep, varying this with restless and purposeless wanderings to and fro, and generally appeared to have lost the faculty of intelligent and attentive observation."

Actually there was no real scientific attempt made to treat mental illness by surgical means until about 1890. A Swiss surgeon, Gottlieb Burckhardt, conceived the idea that if he severed some of the tracts in the frontal area, he could produce alleviation of mental symptoms. He operated on four persons. He took out cores of gray matter in the frontal lobe on just one side. Remember that this was in the days when Lister and Pasteur were just beginning! His patients survived, but unfortunately he obtained no results whatsoever and his work was forgotten for about twenty years, although much experimental work on the function of the frontal lobe took place in animals.

In 1910 a Russian surgeon, Puusepp, heard of the work. He operated on three patients, trying to sever the connections between the parietal and frontal lobes. He obtained no results, and again the entire subject was forgotten.

In 1935 Fulton and Jacobsen, who had been working at Yale in research to determine the neural patterns and the function of the brain, particularly the frontal lobe, were approached by Perrin Long and asked if they could use two chimpanzees for research purposes. One of the chimps, Becky, was well behaved, quiet, docile, ate well, etc. The other, Lucy, was ferocious, unmanageable, would run away from people, would not eat when people were about, etc. This seemed to be a good chance for Fulton to determine what effect resection of various parts of the brain would have on behavior and emotions, since these two chimpanzees had been well studied. He proceeded to take out four to six cores of white matter in each frontal lobe in each chimpanzee. After the operation he found that both animals were very docile, they would stay around people, eat in their presence, etc. Jacobsen and Fulton had noted in the two chimpanzees that the frustrational behavior which is so conspicuous a feature of the reactions of normal chimpanzees when unrewarded in a test situation largely disappears after bilateral ablation of the orbitofrontal cortex and that temper tantrums and anxiety behavior tended to vanish, and the animal, even though it might exhibit momentary anger when unrewarded, quickly "forgot" his disappointment.

In 1935 at an international congress of neurosurgeons in London, Fulton and Jacobsen reported their results with Becky and Lucy without drawing any particular conclusions. Egas Moniz was in the audience. He had a small private mental hospital near Lisbon. He asked Fulton if he had ever tried it out on human beings, and Fulton answered no, he had never thought of that. Moniz argued that if this was true in the highly organized anthropoid, it should no doubt also be true in the human animal when afflicted by obsessions and anxiety. He returned to Portugal enthusiastic about the idea, and approached a Portuguese neurosurgeon, Almeida Lima, and asked him if he would operate on a selected number of patients in his institution. He chose approximately twenty chronic schizo-

phrenics who had been in the hospital for many years. He did this gross type of operation by cutting the nerve tracts in the frontal lobe on both sides. Following the operation, seven of these patients, regarded as incurable, left the institution; seven showed marked improvement; and six little or no change. In 1935-36 when the lobotomy operation was first proposed, knowledge of frontal lobe function both in man and in animals was limited, and the procedure which gained wide acceptance was in large measure empirical and paid little heed to the broader problem of functional localization in the human brain. In 1949 Moniz shared the Nobel Prize for his work in psychosurgery.

This work was published and came to the attention of Walter Freeman, Professor of Neurology at Georgetown University, and it is he who became responsible for the popularity of this operation and who introduced it in this country. Freeman and his associate, Watts, began to operate on a large scale with the thought of treating mentally ill patients. In Freeman's operation he again did a bilateral operation, but he changed the technique somewhat. He made a burr hole on each side of the temporal bone. With definite type of measurements, from the orbit of the eye he cut a bit in front of and above the ear. He put an osteotome in the opening and elevated and depressed it, severing that area of the frontal area. He cut the white matter up and down into the brain. The result was that white matter over a large area was cut. The same thing occurred on the other side. There was a large area of destruction of white matter in the frontal lobe. He planned to cut the connections of the frontal lobe with the dorsal-medial nucleus of the thalamus. It was done blindly. The reported number of deaths was very low, about 5%. The results of his operation in a great many cases was a little controversial. It was considered good as far as alleviation of mental symptoms, in that about one-fourth to one-third of the patients left the hospital and could stay outside, and the majority of the patients who remained in the hospital were easier to care for. One defect was that in some of the patients who left the hospital, their mental symptoms were replaced by other behavior characteristics which were probably more objectionable and embarrassing to relatives than the original symptoms. Some of these patients lost their judgment, inhibitions, and initiative; they lost the veneer of civilization and training which had become a part of their behavior through growth. They would eat with their hands, talk in coarse, crude ways, were uninhibited sexually, morally, socially, and in other ways. This small number of patients made many other neurosurgeons and psychiatrists hesitant about using this form of treatment.

Many objected because it was a blind type of surgery. The operation did not become popular until a new type of approach was developed by Lyerly and Poppen. In their modification, the approach was direct. Instead of doing it blindly, the operation was under sight at all times. The opening, instead of being made in the temporal bone, was made in the superior area on each side in line with the pupils of the eye and on the coronal suture. An incision was made into the brain in the frontal lobe.

Before we began our work here in 1949 we could not determine just what other neurosurgeons were doing be-

cause they had no method of discovering where they had made their cut. It was decided that in order to judge fairly and accurately, we would use tantalum wire to tell where the cut was. This wire produces no electric current in the body, no fibrous tissue, or giant cell response. It remains in the body inert, just as if it were the person's own tissue. Different shapes of wire were devised. We tried to make the loop large and make it fit the entire cavity left after the incision was made, anchoring the top of the loop to the bone. This caused the loop to become deformed and deflected as the bone served as a fulcrum. It was suggested that it not be anchored at all. This was considered radical because it was thought that with the movement of the brain with every heart beat, the loop would tend to cut through the brain. We felt that if the loop were loose, the pressure would be equal and it would not tend to move in the cavity as the brain pulsated, but would stay in place. In the first 100 patients we used these loops lying freely in the incised area, so we could tell where we operated until we knew exactly what we were doing.

We attempted to make our cuts at different angles and use the wire to denote where we had made our incision. Each patient was x-rayed a week after the operation so that a permanent record was made of the type of incision. Four types of incisions were used. The first began in the coronal suture and went acutely forward, the second was less acute, and the third still less so. The fourth went directly downwards in front of the tip of the lateral ventricle. Naively we felt that the farther forward the cut was, the less change there would be in the individual personality. This did not prove to be the case. On assessing our results in the first 100 patients, it was readily determined that the most efficacious incision was one directly in front of the lateral ventricle. Strangely enough, in the x-ray this cut as disclosed by our tantulum loop was in line with the anterior clinoid process of the sella turcica. This was an accidental finding, but it served as a good landmark to determine where our so-called type #4 cut should be. This did not, however, always prove to be the case, because there was found to be much variation in the lateral ventricle, particularly in its prolongation forward. We knew when we were just in front of the ventricle because we located the tip by the use of a needle. There were warnings of what would happen if we did go into the ventricle. However, as it turned out, the lateral ventricle was cut on many occasions and there were no complications whatsoever. In fact, pneumo-encephalograms were done and we could find no trace of air. The ventricle seemed to seal itself up very rapidly. Our type #4 cuts the projections of the fronto-thalamic fibers from areas 9 and 10, as well as the orbital thalamic fibers. Actually where the junction of these two tracts occurs there is some thickening, so that in the operation this can be felt as a tougher area.

We ran into some unusual complications which had not heretofore been reported. About 25% of the patients in our first 50 cases developed a painless type of jaundice associated with some malaise and mild or little elevation of temperature. We inquired of various centers concerning this but found that no one had reported these disturbances. It did not seem to be due to our technique or to infection

introduced at the time, since we were not using transfusions post-operatively, nor did we have any similar outbreaks from other operative cases in the hospital or on our sick wards. We had been using Gelfoam soaked in human thrombin as a hemostatic, which was inserted in the incision. Finding no other cause, we began to suspect the human thrombin as the infectious agent and on eliminating this in favor of bovine thrombin, we found that no further cases of jaundice occurred. Later on the same finding was reported in other centers throughout the country. Peculiarly enough the jaundice only occurred when the thrombin was used in the central nervous system and not in operative sites elsewhere.

We again began to have complications in the form of thromboses and emboli. Various and apparently unrelated neurological syndromes occurred, which did not seem to be related to the operative site. Monoplegias, ocular disturbances, facial palsies, athetosis, and various confusion states of a rather marked nature associated with high elevation of temperature occurred post-operatively within 24 to 48 hours. Having had bad experience previously with thrombin, we again suspected that thrombin might be the cause and we therefore eliminated the use of thrombin and used Gelfoam soaked in saline as a hemostatic. Since then we have not had these complications.

When using thrombin it was noted that women still in the menstrual age had vaginal bleeding two to four days after operation. This was proven by microscopic study to be bleeding and not menstrual fluid. Following the cessation of the use of thrombin, this bleeding no longer occurred.

We have had no difficulty with post-operative hemorrhage since the use of thrombin was eliminated. A strip of Gelfoam is inserted into the incision and frequently over the dura just under the button of bone which is replaced. It seems peculiar that these findings had not been reported previosuly in view of the fact that they occurred so frequently and commonly in our work and were eliminated entirely when thrombin was not used. Later work would indicate that the central nervous system appears to have a peculiar affinity for thrombin and that the same thrombin used elsewhere in the body, even in a very vascular viscera, does not produce localized or distant thrombosis or infectious hepatitis. It would appear therefore that the complications following the use of thrombin are due to its rapid absorption in the cerebrospinal fluid, producing thrombi, locally as well as peripherally.

Most brains seemed to be from 7 to 8 centimeters (about 2½") in depth; most cuts are from 6 to 6½ centimeters deep. The operation is done with a blunt instrument after the gray matter has been cut. No tissue is removed. It is only an incision downward to within one centimeter of the base of the brain. There is very little bleeding. The further you cut forward in the frontal area, the more vascular the area becomes and there is much more trouble with hemorrhage. At first the cut was about 4 centimeters wide and about 5 centimeters at the bottom. As time went on, we began to wonder if it were necessary to have as wide a cut as that. It was noticed that although we tried to cut directly down on the brain, most of the cuts seemed to go medially. We began

to cut less and less wide laterally until the cuts began to be only 2 to 3 centimeters wide. The cuts were all toward the mid-line. These narrow cuts seemed to produce better results; the patients seemed to have a better personality preservation, better judgment, and better ability to handle situations.

Autopsies were done on several patients who had originally been operated on by Freeman and Watts and who had died of other causes. Their brains showed large areas of destruction in the frontal lobe, which was a cystic mass filled with fluid. The patients, however, who had been operated on with the Lyerly technique who came to autopsy, showed surprisingly little pathology, and at times it was even difficult to find where the operation had occurred, the only guide being the few adhesions which might be present about the dura. There was no great destruction of the white matter and no cystic formation.

Fulton demonstrated that the lateral area of the frontal lobe has to do with intelligence, memory, and association. Since that time most of the workers in this field have used this medial cut. It was also found that the cingulate gyrus has a great deal to do with the control of emotions. This is near the mid-line.

In 1948 Scoville devised a different type of operation. He used a frontal approach through the frontal bone. He did orbital undercutting, cutting across and severing this tract on each side. He claimed that with his operation there was better personality preservation, but that is not accepted by others and for the most part, the majority of workers still use the Lyerly approach.

In 1947 Spiegel introduced a technique called thalamotomy. In this operation he devised an instrument by which he was able, through x-ray technique, to locate any of the basal ganglia. He was also able to locate any part of the basal ganglia. With the instrument he attacks the dorsal medial nucleus of the thalamus by inserting needles and using electric cautery. His results are good, but the operation is limited. Few people can perform it.

Topectomy, as devised by the Greystone-Columbia group, is a technique, mostly abandoned now, in which small areas of gray matter were removed from areas 8, 9, 10, and 11. This demonstrated good results, which were however not superior to standard lobotomies, and was inferior in that it was followed by a higher incidence of convulsive seizures. Prior to the Greystone-Columbia project the patients had been subjected to intensive study, which demonstrated the value of various tests and also the effectiveness of total push therapy. These patients had been in hospitals for many years and had been selected because of their supposed incurability. Yet when put on wards by themselves under intensive activity, some improved and became well enough to leave the hospital. A great number of psychological tests were devised for the study of these patients. No test could be devised which would differentiate a patient who had had a lobotomy and a patient who had not.

In 1946 Freeman introduced in this country the transorbital lobotomy, which Fiamberti had been doing in Italy since 1937. He gave his patients electric shock instead of an anesthesia. Under electric shock he put an instrument through each orbital plate and into the brain tissue. The instrument was placed in the upper portion of the eye socket with the eye ball retracted

forward and with the instrument parallel to the nose. He went into the brain to a certain distance and ended up in the same place. The same tracts are cut but to a lesser extent. There wasn't as much destruction. Apparently it is very simple, and has become much more popular lately in various parts of the country, but the effect of this operation compared to the standard lobotomy is still controversial.

The particular diagnosis is not an important factor in the selection of patients for lobotomy, although it is reccognized that the majority of such patients will fall in the schizophrenic category. Of much greater implication is the fact that the patients have been mentally ill to a rather severe degree for a period of at least two years, very often much longer. Another criteria used is that the patients have had the benefit of psychotherapy, of occupational therapy, and of specific treatments, such as insulin, electric shock, and other forms of chemical or mechanical treatment. At this hospital we used the following criteria:

1. Those with purposeful aggressive or sadistic tendencies.

2. Those with chronic depression, anxiety, mood swings, obsessive compulsive, and dissociative hysterical and hypochondriacal manifestations.

3. Paranoid states with emotional lability in any chronic functional psychosis.

4. Catatonic states which show fluctuations.

5. Chronic psychotic states which show spontaneous remissions or remissions under electric shock, or are maintained in such states by maintenance doses of electric shock or ambulatory insulin.

6. Chronic psychotic states which show fluctuations in mood, intensity, and reaction to delusions and/or hallucinations.

7. Chronic psychotic states with purposeless excitements not related to exogenous or endogenous stimuli may show improvement, if such reactions are directed to the environment and are not stereotyped or mechanical.

8. Hebephrenic or simple schizophrenias with no kinetic activity do poorly.

9. Suicidal, depressed, and destructive states do well if such reactions show a direct or purposeful outlet.

We have not found it worthwhile to do this operation on regressed hebephrenic praecoxes, although occasionally one does improve. The best indications are patients who are suffering from active catatonic and paranoid states who react with much mobile emotion to their ideas and environment. Other patients who do well with this operation are those with depression, particularly those with ideas of suicide, of self-mutilation, and hypochondriacal states. Chronic cases of involutional melancholia and paranoid states associated with involutional situations, as well as long-standing psychoneurotics, react favorably to this operation. We have operated on compulsive and obsessive neurotics with good results. Patients who show a good reaction following sodium amytal injection, those who persistently and actively refuse to eat and have to be tube-fed, likewise are good candidates for this operation.

We have operated upon a certain number of organic states with what we regard as favorable results, particularly as far as the family is concerned and the ability of the patient to remain at

home. There are certain patients who are suffering from mental disorders due to cerebral arteriosclerosis, who have as their outstanding defects delusions directed against their families or others, which make their care difficult. We have operated on a certain number of these patients, some who have never been in a state hospital and who have been operated upon in a general hospital. The lobotomy has controlled their restlessness and their emotional instability, and very often has removed their paranoid delusional states, so that they can live at home with moderate supervision. They are, of course, not well and still have their confusion, but it is remarkable how well these patients adjust. The attitude of the family at being able to have their elderly mother or father at home is a satisfying result.

Lobotomy has also been performed on persons who have metastases and suffer severe pain, requiring constant opiates. After the operation they never require any further morphine; they lose their tension and anxiety and pay no attention to the pain. It doesn't alter the actual interpretation of pain or the sensitivity to normal pain. If we test for skin reaction after lobotomy, we find no change. We do find that the individual no longer is unduly sensitive to the interpretation of pain and doesn't react with intense and abnormal emotional swings to pain or painful situations. These people can love and hate, just as you and I. They are not people without emotion, judgment, or intelligence, as was first written up in the journals.

In the early type of operation done according to the Freeman and Watts technique many personality changes were noted, some of which, as has been indicated, were quite distressing at times. With the newer technique, and in particular with the present bimedial type of incision used by most surgeons, there are few, if any, changes noted in personality. Many patients cannot be told in any way from a normal individual, either by psychological or other tests. Some of the sequelae which are noted in patients are, in our opinion, not due to the operation, but to defects which have remained from a long-standing chronic psychosis. Some of our patients have returned to university training and have graduated, others have gone back to supervisory jobs, and others to work requiring technical skill such as architects, engineers, and foremen in various factories. Some of our women have married and have had children and have adjusted well. If a patient is going to improve following the operation, this usually can be determined within a month or two. Sometimes a considerable improvement takes place within the first twenty-four to forty-eight hours. At times, however, there may be a short period of confusion or of excitement following the operation.

There are certain precautions which must be taken after a lobotomy. Since these patients are more prone than other operative patients to the development of femoral thrombosis or pulmonary emboli, it is our practice to get them out of bed within twenty-four to forty-eight hours, even though there may be some elevation of temperature.

Some of these patients are incontinent after operation, but it is our finding that the better preserved the personality of the patient prior to operation, the shorter will the period of incontinence be.

Some very interesting findings have occurred as a result of these operations. We are working in an area which is closely associated with the hypothalamus, which, of course, has a great deal to do with the autonomic regulation of body function. Many of our patients after operation have developed ravenous appetites and they continue to eat and eat and obtain food by all forms of surreptitious methods. Some gain an enormous amount of weight, and our nurses are warned to watch for this. The average gain of weight has been between five and ten pounds, but some have gained as much as fifty to one hundred pounds.

Another of the by-products of this work has been that much more of the function of the frontal lobes is understood. It has been determined that this area has much to do with the autonomic nervous system, and the control and regulation of blood pressure. It has to do with the contraction of the pupils, and of the stomach and intestines. We followed the blood pressure of 57 patients, and we discovered that patients who had had a hypertension which was not due to organic disease lost this after the operation and developed normal blood pressure. It was felt that this was not only due to the loss of anxiety, but was a specific effect.

It was previously indicated that the greatest improvement in the patient is in the field of behavior, and less in the field of the psychosis, but that one influences the other. When the emotional drive behind hallucinations and paranoid or depressive delusional ideas is removed, then the psychosis tends to improve. The changes that occur in behavior are strikingly demonstrated by the results that were evident in the first 50 patients on whom we operated. These patients were chosen specifically for one reason, and that was that they were the most disturbed or troublesome patients in the hospital. The following table shows the changes that were produced in these patients six months after the operation.

Table I

RESULTS ON 50 DISTURBED PATIENTS POST-LOBOTOMY

	Before Operation	After Operation
Restraint	88%	4%
Assaultive	92%	10%
Destructive	60%	6%
Wetting	52%	18%
Soiling	34%	4%
Idle	90%	52%
Employed	8%	52%

The graphic alterations in behavior characteristics are well depicted in this group, and are even more strikingly apparent in patients who have not been as sick as this group, whose psychoses varied in duration from five to thirty years with an average of nine and a half years of mental illness.

Table II

RESULTS ON 200 POST-LOBOTOMY PATIENTS 1-5 YEARS AFTER OPERATION

	Behavior	Psychosis
Recovered	0	0
Markedly Improved	45%	13%
Much Improved	43%	53%
Improved	12%	30%
Unimproved	0	1%
Worse	0	0

Many of these patients have been out of society for years and have not been accustomed to working in a social setting with other people. Many of them had been catatonic or upset in many ways. They refused to eat, they were

suspicious, paranoid, depressed, and not used to mingling with others or paying too much attention to the world. Early in our project we set up definite wards where these patients were sent, gave them intensive training in occupational therapy and recreation, made them mingle with groups, play cards, go to dances and movies, indulge in competitive sports, etc. Every patient was made to dress in his or her best clothes, and the women were sent to the beauty parlor.

Our group of lobotomy patients, comprising approximately 200 patients, have been studied intensively and continuously since the first operation on July 16, 1949.

The following tables illustrate the results of the operation on this group of patients. With only one or two exceptions, patients were selected who have been mentally ill for at least two years, and in the majority of cases, the duration of illness was five years or more. All patients had had previous treatment with insulin, electric shock or other forms of treatment.

It must be emphasized that these statistics are striking in view of the fact that all such patients prior to operation were considered incurable and had had the benefit of other treatment and forms of therapy without much success. Without lobotomy, it was felt that these patients would have remained hospital patients for the rest of their lives.

Present Status of Prefrontal Lobotomy Patients (200)

	MALE %	FEMALE %	TOTAL %
Discharged	20	14	16
Convalescent Care	12	12	12
Family Care	3	4	4
Transferred	6	4	4
In Hospital	59	66	65
Out of Hospital	41	34	35

Patients in Hospital

	MALE %	FEMALE %	TOTAL %
Out for day	20	45	41
Out for 2 days or more	20	24	22
Idle	30	33	32
Employed on ward	40	42	41
Working in industry or off ward	35	33	33
Quiet	85	59	63
Disturbed	15	50	45
Clean and tidy	55	75	70
Untidy	45	25	29
Cooperative	45	58	56
Pleasant	25	48	44
Dull	35	32	32
Occasional restraint	15	23	22
Frequent restraint	10	12	12
Never in restraint	75	65	67

Patients Out of the Hospital

Convalescent Care	40%
Family Care	11%
Transferred	1%
Discharged	48%

Discharged Patients
(Condition on discharge)

	MALE %	FEMALE %	TOTAL %
Improved	29	30	29
Much Improved	71	70	71

It is our practice to keep patients in the hospital for at least six to twelve months after the operation in order to give them a good chance to obtain the fullest benefit from our post-operative rehabilitation program. They are given additional privileges and are slowly introduced to activities which require initiative, planning, and decision. They later are permitted to go out for short periods of time, and thus gradually acclimate themselves to society. During this period a number of the patients also take part in group therapy sessions, which appear to be quite helpful to them.

As can be seen from a previous table,

about 12% of our patients were free from any psychotic symptoms and had it not been that they were lobotomy patients, they would have been considered as recovered. About 15 to 20 per cent of the patients may have relapses following the operation. Some of these are treated with electric shock and react to this in the same way as a non-lobotomized patient. This may be given within a month or two after operation for various manifestations. It seems to stabilize the patients very well so that once they quiet down they don't usually have too many periods of excitement.

In our earlier, more widespread type of incision, about 10% of our patients had convulsive seizures. Most of these were mild and seldom occurred more than once or twice. Sometimes these occurred within a few weeks after the operation, at other times they occurred as late as a year and a half after the operation. The seizures are generally easy to control with the usual anticonvulsive drugs, but very few of our patients required the regular use of such medication. With our present type of narrow bimedial cut, seizures are more rare.

Summary

Based upon the work at this hospital and the reported results elsewhere, it would appear that surgical intervention for the relief of what might otherwise be termed a hopeless psychosis has proved a most valuable therapeutic tool. The empirical initial operation, which produced personality defects, influenced the thinking of workers in the field against this operation and some of this attitude still persists in the minds of workers who have not closely followed the more recent changes in the operative techniques and their results. The use of more restricted operative methods and the adaptation of the operation to the specific nature of the mental illness has clearly shown the types of symptoms and specific psychotic signs that respond to this procedure. It seems evident that with a cut which interrupts the posterior orbital gyrus and the superior frontal areas of 9 and 10 and its projections or a cingulectomy causes no intellectual impairmen, although this may result in lesions of the lateral surface of the frontal area. Modern research would indicate that the radical lobotomy of Freeman and Watts should be abandoned for the bimedial operation, which appears to be primarily concerned with the relief of the appreciation of pain and abnormal emotional states. The possibilities inherent in lobotomy for returning the mentally ill to a happier and more useful existence provide one of the most challenging problems in medicine today.

1920 South Avenue

Pathogenesis of Acute Pulmonary Edema

ARTHUR H. LEVERE, M.D.
New York, New York

Although a vast amount of work has been done to attempt to determine the genesis of acute pulmonary edema, the fact remains that it is a syndrome caused by mechanisms whose nature has not yet been fully established.

Today, the prevailing belief is that acute pulmonary edema is a manifestation of left ventricular failure, in which the symptoms are due to back-pressure into the blood vessels of the lungs. However, as experimental and clinical observations accumulate, it becomes obvious that the validity of the theory of "Left Ventricular failure" can no longer be considered fully established.

Definition Acute pulmonary edema is a syndrome characterized by rapid flooding of the lung alveoli with a serous or serosanguineous fluid with a relatively high protein content. In fulminating form, pulmonary edema can occur so rapidly that, within one to two minutes, the patient is drowned by the copious blood-stained fluid that pours into the respiratory passages.

Although some authors[36] attempt to distinguish acute pulmonary edema from paroxysmal nocturnal dyspnea and cardiac asthma, certain aspects of the last two conditions will be discussed as they not infrequently progress into a typical episode of acute pulmonary edema.

History The clinical picture of acute pulmonary edema was described over two centuries ago, and it was upon the basis of Welch's experimental work in 1875, that the theory of left ventricular failure was founded. Welch interfered with the function of the left ventricle by aortic ligation and mechanical compression of the left ventricle, and reported the development of pulmonary edema. He then concluded that the disproportionate output between a failing left ventricle and a functioning right ventricle, which continued to pump blood into the pulmonary circuit, was the genesis of pulmonary edema.

Etiology There are many clinical conditions in which acute pulmonary edema occurs. These will at first simply be listed; they will be more fully discussed later, as the necessity arises.

From the Journal Club Conference, New York University—Bellevue Medical Center Post Graduate Medical School, New York, N. Y.

1. **Heart Disease** Especially with strain of the left ventricle. Seen in aortic insufficiency, hypertensive heart disease, coronary and myocardial sclerosis, and rheumatic heart disease with mitral stenosis and insufficiency. It should be noted that mitral stenosis, which gives rise to a marked and prolonged increase in pulmonary capillary pressure, is not commonly associated with acute pulmonary edema.[20, 21]

2. **Toxic Gases** Acute pulmonary edema is not uncommon with inhalation of toxic gases. These include phosgene, oxides of nitrogen, chlorine gas, and phosphorus pentachloride and trichloride.[20, 36, 49]

3. **Skull Traumas** Incidence of between 50-70% of acute pulmonary edema in fatal cases of patients with skull fracture and normal hearts.[20]

4. **Central Nervous System** Lesions such as cerebral hemorrhage, encephalitis, meningitis, and epileptic seizures are not uncommonly associated with acute pulmonary edema.[3, 41, 47]

5. **Diseases of the Lungs** Pulmonary edema is seen in influenzal pneumonia in children, pulmonary infarction and with fibrosis of the lungs, in whom on post mortem examination, the right ventricle alone frequently shows hypertrophy.[20] In drowning, the fluid in the lungs is not sea or fresh water, but rather the albuminous plasma—like fluid seen in acute pulmonary edema.[13, 20, 36]

6. **Numerous Other Conditions** such as typhoid fever, measles, alcoholism, venoms, reflexes from internal organs during operations, and distention of a hollow viscera like the stomach, have all had pulmonary edema associated with them in the presence of an apparently normal heart.[4, 20, 36]

The conditions above, in which there is apparently no evidence of left ventricle dysfunction, raise strong arguments against the hypothesis of left ventricular failure being the sole cause of acute pulmonary edema.

Lungs and Pulmonary Circulation Before continuing on to the experimental production of pulmonary edema, it would be worthwhile to first consider in some detail the "shock organ" in acute pulmonary edema; the lungs and pulmonary circulation.

To facilitate gaseous exchange, the blood passing through the lungs is only separated from the air by the thinnest of possible membranes. The ultra-thin pulmonary capillaries expose a maximum of contained blood to the environmental gases. Such a system has, of necessity, a low capillary pressure. If the pressure rises above the osmotic pull of the plasma proteins, fluid will transude the vessel wall. Cournard has determined the pulmonary artery pressure as 22/8 mm. Hg, the pulmonary capillary pressure as 8 mm. Hg, and the left auricular pressure as 4 mm. Hg.[37]

The pulmonary circuit is a low pressure area with great distensibility and little resistance. This, and the vastness of the capillary bed, estimated at between 90 and 140 square meters of surface, all reduce resistance to flow to a minimum.[30] In a normal man, exercise, which may increase the cardiac output two to three times, may cause no increase in pulmonary arterial pressure, in spite of the several-fold increase in blood in that organ.[9, 13, 42]

There are essentially two theories concerning regulation of the pulmonary vascular system.

1. **Arteriolar Tone**[2,5,9,20,30,36,38,42,45] It

is maintained that vasomotion controls pulmonary arterial pressure and blood flow. Gaylor has demonstrated only scanty innervation of the pulmonary vessels. He was able to trace some fibers to the pulmonary artery, veins, and capillaries.[7] However, Liljestrand, Dexter and co-workers, and Motley have demonstrated a sharp rise in the pulmonary arterial pressure following short periods of anoxia, and they attribute this to active vasomotion. However, Liljestrand considered this a local effect as it was not abolished by atropine, vagotomy, or sympatholytics.

Rodbard states that, in distinction to the systemic circulation where vasomotion acts to distribute the cardiac output to organs having different functions and with varying needs for blood, all parts of the lung have the same general function. Therefore, shunting of blood in the pulmonary circuit by vasomotion can have no normal functional value. Such a generalized vaso-constriction would throw an extra burden on the right ventricle and by reducing blood flow to the lungs, would probably produce hypoxia and thereby bring on a deleterious chain of events.[13]

Hannemen states that there is vasomotion of the pulmonary arterioles in which there is mixed action by the sympathetic and parasympathetic nervous systems.[36] De Burgh Daly states that the sympathetic causes vaso-constriction, and stimulation of the cervical vagi causes strong vaso-constriction in some and weak vaso-dilatation in other pulmonary vessels.[52] Fowler was unable to demonstrate any change in pulmonary arterial pressure in normal people after the use of Tetraethylammonium Chloride.[46]

However, the question of an active state of contraction of the pulmonary vessels is still not decided. It should be noted that the pulmonary circulation is remarkably insensitive to the action of agents which markedly affect pressure in the systemic circulation.[12, 13, 46] Hamilton states that "vasomotion activity of the pulmonary arterioles is a feeble vestigial mechanism which is without important function."[14]

2. Passive Concept As already noted, many workers hold vasomotor activity to be unimportant. They consider the lungs as huge sponges which passively accept right ventricular output. The residual blood in the lungs is considered to be simply the difference in the pumping action of the left and right ventricles. In this situation, pulmonary edema occurs whenever the output of the left ventricle fails to equal that of the right ventricle. Riley et al, suggest that the failure to note an increase in pulmonary arterial pressure in man with increases in cardiac output up to two to three times the resting level implies an expansion of the pulmonary vascular bed. This is caused by increased negativity of the intrathoracic pressure in inspiration which passively expands the vascular tree.[9]

Two other theories which concern the pulmonary circulation should be mentioned. The first is that of Rodbard, who is a strong proponent of bronchomotor tonus.[13] He points out the richly innervated bronchiolar musculature and states that it is almost a fact that the only recognized role is the production of bronchial asthma—hardly a likely primary function. He postulates that contraction of the bronchioles causes entrapment of the air in the alveoli. This increased air pressure then compresses the pulmonary capil-

laries and inhibits transudation across its wall. Such an increase in bronchiolar tone can counteract the pulmonary vascular congestion and edema and yet, when marked, contribute significantly to pulmonary hypertension.

Normally, in inspiration, the bronchioles dilate and elongate; in expiration, they narrow and shorten. In inspiration, there is increased venous return to the heart and also, an increase in the negativity of the intra-thoracic pressure. This permits optimal filling of the capillaries with an increase in intrathoracic blood volume. Rodbard states that the increased alveolar pressure of expiration may act as a physiologic positive pressure mechanism, compressing the pulmonary capillaries and reducing their size and the blood volume of the pulmonary system. Further, since the pulmonary circuit has a limited capacity for vasomotion, any acute rise in pulmonary arterial pressure must come from a resistance beyond the capillary or arterial tree. In addition, when the left ventricle fails to pump away its return, pulmonary venous pressure rises, and it, in turn, is transmitted to the pulmonary capillaries. Considering the capillary structure, pulmonary edema is a natural consequence of a raised venous pressure, unless, as Rodbard states, an extra vascular pressure is applied to these delicate vessels. He suggests that the increase in intra-alveolar pressure caused by a reflex increase in bronchiolar tone prevents transudation and has a decided effect on pulmonary arterial pressure. It is further stated that morphine, besides relieving anxiety and dyspnea, may be efficacious in acute pulmonary edema because it is a potent broncho-constrictor; in this way it increases the intra-alveolar pressure and hinders transudation.

McCann suggests that the lungs act as check-valves capable of regulating the transfer of blood from the right ventricle to the left ventricle.[30] The pressure within the pulmonary capillary network is the result of the pressure of the air in the alveoli, the pressure in the pulmonary veins, and the pressure in the two sets of arterioles—the pulmonary and bronchial. It has been noted that if one pulmonary artery is ligated, blood fills and distends the pulmonary capillaries. This blood comes from the dilated bronchial artery with its higher pressure system. McCann describes a marked similarity in the lung pathology of a guinea pig placed in a chamber at the pressure of half an atmosphere, the lungs of a patient with congestive failure, and the lungs of an animal after ligation of a pulmonary artery. It has already been noted that anoxia constricts the pulmonary artery, and so decreases pulmonary arterial blood flow. The lung congestion is then due to greater inflow from the bronchial artery coincident with the decreased flow through the pulmonary artery. In addition, autopsy findings in aviators deprived of an oxygen source at high altitudes reveal lungs engorged with blood, and very similar to the lungs seen in heart failure.

Experimental Acute Pulmonary Edema Acute pulmonary edema has been produced in numerous animal experiments by varied techniques and procedures.

1. Mechanical The work of Welch has already been briefly mentioned. Some workers believe that Welch's work is invalid on the basis that the pulmonary edema was a terminal event.[20, 36, 41] Paine and co-workers produced acute

pulmonary edema in dogs with aortic compression proximal to the origin of the great vessels. No pulmonary edema occurred if the aorta was ligated distal to the vessels to the head. This procedure, plus carotid ligation, did produce pulmonary edema.[40] Some workers record an increase, while others a decrease in the left auricular and pulmonary artery pressures after severe aortic obstruction or cardiac compression.[3, 20]

When silver nitrate is injected into the left ventricular wall of animals only a small percentage develop pulmonary edema. Many others have fibrillation. On the other hand, if the right ventricular muscle is injected over 60% develop acute pulmonary edema.[20, 36] The effects of ligation of either coronary artery in the dog are the same. There is a decrease in the pressure in both the aorta and the pulmonary artery suggesting that coronary occlusion causes insufficiency of the whole heart.[32] Altschule failed to produce pulmonary edema with balloon inflation of the left auricle.

On the basis of some of the above work, Luisada states that it is impossible to produce isolated insufficiency of a single ventricle and speculates a neurogenic origin for the production of pulmonary edema.[20]

2. Chemicals The acute pulmonary edema produced by the inhalation of noxious gases, such as phosgene, is considered to be due to increased capillary permeability secondary to cellular damage. The fluid has a high protein content and there is a normal right ventricular and pulmonary artery pressure.[3, 20, 36]

3. Skull Trauma and Increased Intracranial Pressure[17, 22, 33, 35, 39, 47] MacKay produced acute pulmonary edema in seconds, in rats subjected to crushing skull trauma. The pulmonary edema was prevented by the narcosis produced by sedatives and by adrenergic blocking agents. Bilateral cervical vagotomy protects guinea pigs against pulmonary edema produced by brain trauma[22] or by increased intracranial pressure.[33]

Campbell and co-workers noted extreme bradycardia and decreased cardiac output associated with elevated pulmonary venous and arterial pressures in dogs subjected to increased intracranial pressure. Atropine protected the animals against the development of pulmonary edema.[35, 39]

Harrison and Liebow also noted systemic hypertension and as the greatest incidence of edema occurred in the animals with the highest and largest sustained left auricular and pulmonary artery pressure, suggest that the cardiopulmonary factor is primary.

Cameron and De were able to produce acute pulmonary edema by the cisternal introduction of fibrin in rats. Hypertension and an elevated right auricular pressure developed. Pathologically there was tremendous dilatation and increased permeability of the pulmonary capillaries. Bilateral vagotomy, and atropine, prevented the pulmonary edema while not affecting the systemic hypertension or elevated auricular pressure.[2]

Lesions placed in the rostral hypothalamus have produced acute pulmonary edema.[43]

It is suggested that stimuli from the central nervous system, probably originating in the vagus nuclei, upset the normal equilibrium between osmotic and hydrostatic pressure, possibly by increased capillary permeability, and causes acute pulmonary edema.[2]

4. Bilateral Vagotomy Acute pulmonary edema has been produced by bilateral cervical vagotomy in many laboratories.[5, 20, 33, 36] Other workers have been unable to duplicate this work and claim that laryngeal paralysis and accumulated tracheal secretions contribute markedly to the ensuing pulmonary edema.[10, 18]

Reichsman contributes the pulmonary edema to the prolonged labored inspiration following vagotomy. This greatly increases the negativity of the intra-alveolar pressure causing dilation and transudation from the capillaries. He doubts that a true neurogenic pulmonary edema is caused by vagotomy.[18] Farber believes that vagotomy causes paralysis of pulmonary vasomotion with ensuing pulmonary edema.[5]

5. Other Methods Luisada and Sarnoff, and Luisada and Contro produced acute pulmonary edema in dogs by intra-carotid infusions of fluids directed in cephalad direction. No pulmonary edema resulted if the same amount of fluid was given intravenously or by Femoral artery infusions.[19, 53] They postulate that in the presence of hypervolemia cardiovascular receptors in the carotid sinus, heart and lungs are stimulated thereby, causing a reflex which increases pulmonary capillary permeability. The pulmonary edema is prevented by carotid sinus denervation and by morphine and barbiturates which depress central reflexes. The use of sympatholytic drugs, as benzodioxane and dibenamine, also prevented pulmonary edema, thus suggesting carotid-sympathetic reflex arcs.

Koenig and Koenig produced acute pulmonary edema by the ingestion of ammonium containing salts. It also was prevented by sympatholytic agents.[24]

Acute pulmonary edema is also produced fairly regularly in animals by adrenaline injection.[21, 36, 38, 44] Paine and workers, and Barach believe that the pulmonary edema is due to left ventricular failure secondary to systemic hypertension. They present evidence to show a decreased left ventricular output with a greater inflow into the lungs from the right ventricle.[38, 44] Paine and associates were only able to produce adrenaline pulmonary edema if the left ventricle was already damaged, or under "strain" as from a surgically produced aortic insufficiency. However, pituitrin causing similar blood pressure elevations has not caused pulmonary edema.[2, 36]

Hanneman presents evidence which he considers as favoring a neurogenic factor: pulmonary edema is caused by stimulation of the peripheral vagus; unilateral damage in the region of the III ventricle prevents adrenaline-produced pulmonary edema; electric stimulation of nerve plexi about the lungs causes pulmonary edema; bilateral removal of the stellate ganglion impedes pulmonary edema in ¾ of cases; and lastly, pulmonary edema can be produced by modifying only the circulation of the head and this is determined by a hypertension of the cephalic vessels.[26]

Clinical Pulmonary Edema By far, the vast majority of clinicians favor the left ventricular failure theory as being the genesis of acute pulmonary edema. Unfortunately, the seriousness of the condition has only permitted limited investigation. All clinical findings have been determined in cardiac patients.[15, 29]

1. Cardiac Output Scanty work reveals that output of both ventricles is

unaltered or decreased. The pulse rate is uniformly increased.[6]

2. Circulation Time Uniformly increased arm to tongue circulation time.[16] In cardiac patients there was no substantial increase during the attack as compared to in between attacks.

3. Venous Pressure Weiss and Robb noted that the venous pressure was the same or only slightly elevated during the attack as compared to the period between. Most others record a definite increase.[27]

4. Blood Pressure The blood pressure is usually elevated but may be normal or decreased. Weiss and Robb state that the pressure elevation is usually striking. Sonne and Hilden record elevated blood pressure in over 70%.[6] Altschule believes the hypertension is due to vasoconstriction and increased sympathetic activity, which apparently puts an added strain on the burdened left ventricle.[15] Luisada believes that a ventricle able to maintain a higher pressure certainly should not be considered as "failing."[20]

5. Respiration The vital capacity is decreased between attacks and even lower during the attack. Weiss and Robb believe that the main characteristics of the pulmonary circulation is not an alteration in the blood volume but rather an increase in the volume of the pulmonary bed and a relative stagnation of the pulmonary blood along with acute hypertension of the pulmonary circuit.

A few determinations have recorded a decrease in the arterial oxygen saturation. McCann suggests that hypoxia, itself, may be one of the main factors in precipitating failure and perhaps pulmonary edema. It has already been mentioned that hypoxia causes vasoconstriction and pulmonary hypertension.[25]

6. Nocturnal Occurrence The nocturnal occurrence of acute pulmonary edema in cardiac patients is well known. Briefly considered, some of the factors thought to be responsible are (1) slipping in bed or recumbency favor resorption of extracellular fluid and hypervolemia, (2) supine position causes a decrease in vital capacity, (3) there is a 10-20% decrease in serum proteins in the recumbent position. This may decrease the osmotic pressure to a critical point.[27] (4) nightmares and excessive warmth cause an increase in respiration with an augmented inflow to the right ventricle, (5) in sleep, the spontaneous depression of respiration allows CO_2 to accumulate and in those patients subject to pulmonary edema the excess CO_2 may act as a respiratory stimulant to increase the venous return.

Most of these factors cause an increased venous return to the heart with a consequent rise in the output of the normal right ventricle. The left ventricle, already impaired as a result of stress or coronary disease does not completely expel the increased blood volume brought to it. The left ventricular diastolic pressure then rises with a subsequent elevation in pressure in the pulmonary vascular bed. Congestion and pulmonary edema then follow. The ensuing labored respiration and dyspnea secondary to pulmonary congestion further increases the negative intrathoracic pressure which causes a further increase in venous return—and a vicious cycle is perpetuated. This is the theory of left ventricular failure.[1, 15, 24, 26, 28, 29, 31, 32] The transudation of fluid into the alveoli causes hypoxia of the endothelial cells with an associated increased capillary

permeability and further edema formation. Increased capillary permeability is suggested by the relatively high protein content of 2-4% in the edema fluid.[3, 31]

It is this dissociation between the right and left ventricle which is used to explain the development of acute pulmonary edema in all cardiac patients. It is stated that pulmonary edema is due to a sudden increase in pulmonary congestion as the result of increased inflow load in a patient who has a disproportionate ability of the left ventricle (as compared to the right) to respond. Therapy aimed at reducing the venous return, as tourniquets, the upright position and venesection, frequently brings relief.

Luisada doubts the ability of one ventricle to fail without the other doing the same.[20] This has been shown experimentally before. Wiggers adheres to this and states that such an inbalance of cardiac mechanism, when it occurs, is quickly remedied.[41] Experiments show that no extreme rise of pulmonary capillary pressure occurs when the left ventricle passes its limit of cardiac reserve before the right ventricle.

Theoretically, acute pulmonary edema could be due to a primary alteration of capillary permeability, a primary elevation of intracapillary pressure or a markedly decreased plasma protein level.[41] Any combination, not sufficient by itself, may also be able to cause increased transudation. Wiggers states that decreased blood protein is only a partial factor. Hypoxia, with increased permeability, or the formation of capillo-dilator products which alter permeability, may be produced. No work has substantiated the latter hypothesis. He doubts that increased capillary pressure alone can produce pulmonary edema. Marked elevation of the pulmonary arterial pressure, in dogs, causes no pulmonary edema unless plethora, cardiac slowing or irregularity occurs. No pulmonary edema was produced by severe aortic stenosis.

Friedberg admits that the prompt effect of morphine suggests a causative role of the nervous system in pulmonary edema.[31]

Harrison states that morphine aids by lessening the labored respiration, raising intrathoracic pressure, and reducing the venous return.[26] However, it may act largely by depressing the respiratory center or reflex arcs.[20] Acute pulmonary edema has been terminated by stellate ganglion block.[20, 29]

Conclusion

Although the majority of clinical observations favor the left ventricular "failure" theory, there are some clinical findings which are difficult to explain on this basis. In addition, experimentally, it has been shown that acute pulmonary edema is not consistently produced when the left ventricle is made to "fail". On the contrary, acute pulmonary edema has been produced in animals by numerous extracardiac and neurogenic procedures. And once produced the animal can be protected by sympatholytic agents or by narcosis with morphine and barbiturates.

Certainly, the role of hypoxia on the pulmonary vessels and the concept of bronchiolar tone and increased intra-alveolar pressure should be further elucidated. Car-

diac and pulmonary reflexes should be further studied.

With our present knowledge, no rigid conclusions as to the pathogenesis of acute pulmonary edema can be made. Although there is only a little evidence favoring a purely neurogenic origin of pulmonary edema, experimental work has shown the inadequacy of the generally accepted theory of left ventricular "failure". Probably, the answer lies in a combination of mechanical and neurogenic factors.

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Gaucher's Disease

DAVID DWORKIN, M.D.
New York, New York

The presentation of a paper devoted to the description of a malady as uncommon as Gaucher's disease requires some justification. To study in detail the aspects of a condition which many may not have the opportunity to deal with may seem perhaps to the practical minded to be giving the disease more attention than is warranted. Nevertheless it is interesting to note that although the number of cases reported since the disease was described seventy-odd years ago, is still small, clinical awareness of the condition, improved knowledge of its manifestations and more accurate diagnostic procedures are responsible for bringing to light many previously undiagnosed and misdiagnosed cases.

Gaucher's disease belongs to that group of diseases known as the "lipidoses" or "lipoidoses". In this classification it shares a place with Hand-Schüller-Christian's disease, and Niemann-Pick's disease. Gaucher's disease unlike the latter two diseases is of more interest to the internist since a considerable number of patients affected are in the adult age group. This presentation is devoted to study of Gaucher's disease. Hand-Schüller-Christian's disease and Niemann-Pick's disease are for the present left to the pediatrician.

Definition Thannhauser[1] defines Gaucher's disease as an uncommon familial disorder of lipoid metabolism in which there is an abnormal accumulation of cerebrosides in the reticuloendothelial cells of the spleen, liver, bone marrow and lymph nodes.

Historical *Phillip Charles Gaucher* was the first to describe the disease which bears his name in a thesis submitted to the faculty of medicine at Paris in 1882 for the doctorate degree. The paper was entitled "De l'epithelioma primitif de la rate" or "a primary epithelioma of the spleen.[2] He described the autopsy findings in a case of splenohepatomegaly where the splenic pulp was completely replaced by "large pale cells". He attributed these changes as being due to infiltration of the spleen by a neoplastic process in the nature of a primary epithelioma.

During the last few years of the 19th century other workers were becoming interested, and necropsy studies were reported in which these "large pale cells" were found in the liver, and retroperitoneal lymph nodes. The neoplastic nature of the disease was being disputed and it was suggested to be a

From the Journal Club Conferences, New York University-Bellevue Medical Center Post Graduate Medical School, New York, N. Y.

hyperplastic process in response to some irritant toxin.[3,4] The disease was called by the very unsatisfactory name of "Primary Idiopathic Splenomegaly".

It was not until 1904 that *Brill, Mandlebaum and Libman*[5] presented to the New York Pathological Society the important observation that "Splenomegaly Primitif" produces extensive involvement of the skeletal system as well as the previously mentioned organs. In 1907 *Schlagenhaufer*[6] designated the disease as a systemic affection of reticulum cells of the lymphatic and hemopoietic organs. *Marchand*[19] during the same year made a careful histological study of the disease and concluded that there was deposition of a semisolid hyaline substance in the "peculiar large pale cells." *Brill et al.* in 1913[7] concluded that these "large pale cells" were in reality swollen reticular cells. They suggested that the disease was due to a metabolic disturbance and proposed the name "Gaucher's disease" in preference to the misleading term of "primary idiopathic splenomegaly". The work of *Epstein*[8] *and Lieb*[9] in 1924 showed that the substance deposited in the reticuloendothelial cells was a cerebroside named kerasin.

Incidence It is difficult to establish the exact occurrence of Gaucher's disease since many cases have been observed without publication. About 300 cases have been reported up to 1954. Some of the large studies include:

1926: Pick—39 cases of Gaucher's disease.[10]

1929: Hoffman and Makler—89 cases of Gaucher's disease.[11]

1950: Reich, Seife and Kessler—20 cases of Gaucher's disease.[13]

1954: Medoff and Bayrd—29 cases of Gaucher's disease.[12]

Distribution Gaucher's disease has been found widely distributed throughout Europe and America, with about one-third of the reported cases observed in the United States.[1] Isolated cases have been reported from China,[13] Japan[1] and India.[14]

Race Though the disease has been reported in Negro and oriental races, predominantly the majority of recorded cases are in white people. All studies point out the high incidence in Jews. In one series 95% of the patients involved were Jewish.[15]

Sex *Pick*[16] *and Thannhauser*[1] noted the disease to be more prevalent in females than males. More recent studies[15,12] suggest the distribution between the sexes to be equal.

Age Gaucher's disease is not restricted to infants and children as was once believed but has a very broad age distribution, with many cases occurring in later life. Cases have been described in patients as young as one week[11] and as old as 79 years.[17] There are two forms of the disease; an *acute infantile form*, and a *chronic adult form*. The acute infantile form of Gaucher's disease is the less common variety: The onset is observed before the sixth month of life and death occurs within two years. The more common chronic adult form may be detected at any age of life and pursues a protracted course of 10 years or more. Since the adult form is often insidious in onset it may be difficult to determine accurately the age at which it begins. In *Cushing's* series[18] 58 per cent of the patients developed symptoms in the first decade of life while the remaining 42 per cent were evenly distributed over the second to fourth decade. In Reich's series[13] of 20 patients, 10 were over 40 years of

age. In *Medoff's* series[12] 26 of the 29 cases were in the second to sixth decade with 50 per cent over 30 years of age.

Hereditary Mechanism *Collier*[3] as early as 1895 observed the occurrence of Gaucher's disease in siblings. Following this several other investigators reported a familial incidence in their studies.

Anderson[20] was the first to attempt to explain the hereditary mechanism involved. He studied a family in which the disease affected all the females but no males. He suggested the possibility of transmission through a male carrier.

Green[21] in 1948 made a very complete study of the genetics involved in Gaucher's disease. He analyzed 89 clinically active cases in 31 families, 25 of whom were studied personally by him in 6 different families. He observed that the majority of his and other familial cases occurred as a "*horizontal spread*". By this is meant that the condition appeared to be present in members of one generation only, namely in brothers and sisters or in cousins, but not in parents or grandparents, or offspring of the patients. In only 2 families was "*vertical spread*" observed. In these families the disease was present in 2 generations, namely a parent and children.

Groen supports the hypothesis that Gaucher's disease is a *genetic mutation* which once established is transmitted as a dominant trait producing the disturbance in lipid metabolism. In spite of the fact that it is dominant it is rarely transmitted from parents to offspring, because many cases occur in children who die before reaching the reproductive age, and of the adults few marry and those who do have a high incidence of infant mortality, but a certain number of normal children are observed.

Gaucher's disease has a tendency to extinguish itself. If the disease is present at birth, death seems to result within a year. If it begins in childhood death occurs in the first or second decade. In young adults the disease can be compatible with life for many years but the affected offspring die shortly before or after birth and only unaffected cases survive.

The explanation offered by *Groen* for the skipping of generations in a dominant trait is that the disease is most likely present in an asymptomatic carrier individual in subclinical form, who can often be detected by bone marrow studies and who may not manifest the disease till middle life or old age. He therefore suggests that since these carriers may transmit the disease to fifty percent of their offspring, examination of relatives of patients with Gaucher's disease should be carefully carried out.

The frequent occurrence of abortions and still birth in the offspring of Gaucher patients may be due to the fact that the affliction becomes more severe in each succeeding generation until finally it has a *lethal effect* when it establishes itself during fetal life. Thus a self extinguishing mechanism is postulated, and only unaffected offspring of affected individuals can survive.

Pathology [1, 15, 18]

1. Gaucher Cell

a. Morphology

The pathognomonic feature of Gaucher's disease is the presence of the *Gaucher's cells* in the spleen, liver, lymph nodes and bone marrow. A typical cell is large and pale, round oval or

polygonal, varying from *20 to 40 or more microns* in diameter. It contains one or more small nuclei with a fine granular chromatin structure and a slightly oxyphilic nucleolus. The nuclei are eccentric and located near the periphery of the cell. Sometimes there are *10 to 12 nuclei* in which case the cell may enlarge to 80 microns in diameter, and have been mistaken for megakaryocytes.

The cytoplasm of the cell is crossed by a delicate network of parallel wavy lines giving it the appearance of opaque, wrinkled tissue paper. The cytoplasm does not stain with any of the usual dyes, neither does it show any of the usual staining reactions for lipids.

b. Histogenesis

The histogenesis of the Gaucher's cells has caused considerable controversy. Some authors attribute their origin from endothelium, others from reticulum, and several from both. Most investigators now agree with *Pick* that these cells arise from the reticulum in the spleen, lymph nodes, and bone marrow, from the adventitial and peri-adventitial cells of the small arterioles of the splenic pulp and lymph nodes; in the liver from the histiocytes of Glisson's capsule and the adventitial and peri-adventitial connective tissue of smaller vessels. In the infantile form of Gaucher's disease the organs involved are more widespread and include, thyroid, thymus, lung, and brain.

2. Spleen

The spleen is usually enlarged sometimes enormously. Its size and weight depend on the duration of the disease and the age of the patient. The average weight found in 25 cases of *Pick*[10] and 24 cases of *Thannhauser*[1] in adults with Gaucher's disease was *2,800 grams* (normal spleen is 150 to 250 grams). One case of Brill[5] weighed *8,100 grams*. The organ is firm, smooth, and dark purple, the capsule may be thickened. Hemorrhagic areas or infarcts may be visible on the external surface. The cut surface shows a grayish-yellow mottling which represents accumulations of Gaucher's cells. The microscopic picture is characterized by the almost complete replacement of normal and splenic pulp by nests of Gaucher's cells. Areas of hemorrhage and fibrosis are observed in cases of long standing.

3. Liver

The liver is generally increased in size but not in proportion to the spleen. *Pick*[10] found an average weight in 7 adult cases of *3300 grams* (normal liver is 1500 to 2000 grams). The connective tissue is increased in the advanced stages giving it a cirrhosis-like appearance, in addition to a thickening of Glisson's capsule. Microscopically Gaucher's cells are widely distributed throughout the portal spaces and sinusoids.

4. Lymph nodes

The superficial lymph nodes may be enlarged, the deep thoracic and abdominal glands are nearly always increased in size. The nodes are soft and measure up to two centimeters in diameter. Microscopically the characteristic replacement of the parenchyma by Gaucher's cells is seen.

5. Bone

Involvement of the skeletal system in Gaucher's disease is as characteristic as involvement of the spleen. Though all bones may be affected, changes most frequently occur in the femur, sternum, and ribs. The Gaucher's cells infiltrate

all parts of the bone marrow, resulting in hemorrhage and necrosis of the marrow cells with subsequent decalcification and rarefaction of the bone. The cortex periosteum and cartilage are not involved per se but affected secondarily by expansile pressure. This explains the bulging or "*Erlenmyer flask deformity*" at the lower end of the femur as seen on x-ray. This flaring of long bones is however not restricted to the femur but may also involve the tibia and humerus. The decalcification of bone may result in complete destruction of one or more vertebrae with a true gibbous formation. Bony changes have also been observed in the mandible and maxilla. In a 51-year-old patient with Gaucher's disease and signs of otosclerosis, Gaucher cells were found in the petrous bone at autopsy.

6. Eyes

East and Savin[22] examined histologically the *pingueculae* (brownish wedge-shaped thickenings of the conjunctiva) in a case of Gaucher's disease and found typical Gaucher cells.

7. Skin

Pick[16] believes that the skin pigmentation is due to hemochromatosis. *Wechsler*[23] showed conclusively by skin biopsy and chemical analysis that the pigment involved was melanin.

8. Nervous system

Involvement of the nervous system is frequently seen in infants but rare in adults. *Teilum* in 1944[24] reported an autopsy of a 50-year-old woman with Gaucher's cells in the posterior lobe of the pituitary, infundibulum, and hypothalamus. He suggested that the Gaucher's cells in the brain of this case were derived from microglia cells. In infants *Oberling et al.*[25] found that the pyramidal cells of the cerebral cortex show atrophy and vacuolization. The vacuoles are often large enough to distend the cell body. Typical Gaucher's cells are not present in the brain.

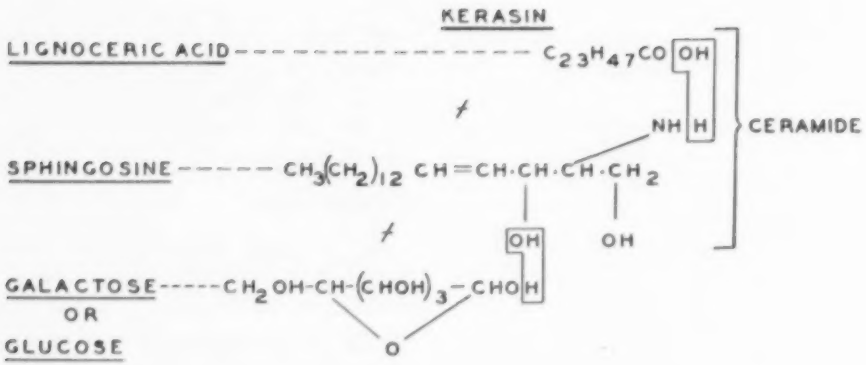
9. Other organs

In one adult case Gaucher's cells have been found in the lungs[26] and in another in the kidney.[27] In infants widespread organ involvement is observed, and Gaucher's cells are seen in the thymus, tonsils, intestinal lymphatics, adrenals and lungs. *Pick's* explanation is that the reticulum cells of these organs are phagocytic during the first year of life.

Biochemical Aspects Cerebrosides are lipids containing a *fatty acid*, *base* and *carbohydrate*. They are found chiefly in nervous tissue including brain and myelin nerve sheaths, in other organs they are found only in traces. All cerebrosides are composed of a *ceramide* (that is a compound consisting of a base, *sphingosine* bound to a *high fatty acid* of the C_{24} series in an acid-amide linkage) with a carbohydrate, *glucose* or glucose linked as a glucoside to the alcoholic hydroxyl group. Cerebrosides differ in respect to the fatty acids contained in their molecule:

- kerasin—lignoceric acid (tetracosonic acid)
- cerbrone — alpha-hydroxy-lignoceric acid (cerebronic acid)
- nervone—nervonic acid (unsaturated lignoceric acid)
- oxynervone—oxynervonic acid (unsaturated cerebronic acid)

Cerebrosides may also be defined as galactosides or glucosides of ceramides. The physiological significance



of cerebrosides in normal lipid metabolism is entirely unknown.

The outstanding biochemical finding in Gaucher's disease is the occurrence of large quantities of the cerebroside, *kerasin*, within the Gaucher's cells. The content of other lipids in the affected cell does not seem to be abnormal.

Uzman[33] claims to have isolated a new cerebroside from a spleen of Gaucher's disease (in addition to kerasin) which he has named a "polycerebroside." A substance similar to but not identical with kerasin. He does not discuss the significance of this new compound but raises the question that it might be the precursor of kerasin.

The sugar component of the cerebroside isolated from the spleen in Gaucher's disease has caused considerable controversy. It had been known for a long time that the normal brain contains galactose only. When several investigators[28, 29] found that the spleen in patients with Gaucher's disease contained glucose instead of galactose, it was thought that a biochemical basis existed for distinguishing physiological from pathological cerebrosides. It has since been reported by *Ottenstein et al.*[30] in 1948 that chemical analysis of three Gaucher's spleens contained mixtures of glucose and galactose in two of the cases.

Only last year *Parke*[31] isolated lactose from Gaucher's spleens while *Wolf*[32] isolated lactose and fructose.

Etiology and Pathogenesis The theories concerning the origin of Gaucher's disease have undergone considerable revision, since Gaucher himself erroneously regarded it as a malignant process. At the present time two contradictory views have been offered to explain the pathogenesis of the condition. One holds that the disease is due to a general disturbance in the metabolism of lipids. The other postulates that it is only the metabolism of particular cells which is involved.

Ludwig Pick[16] is the propagator of the former theory. He considers that Gaucher's disease is due to a primary general disturbance of the intermediary lipid metabolism, with an excess production of cerebrosides by the bodily organs. This results in an accumulation of cerebrosides in the blood serum with secondary deposition of the material in the reticular cells. According to this view cerebrosides are not formed in the reticular cells. Instead they are trans-

ported via the blood stream from other organs and are taken up and stored by the reticular cells in a similar manner to the storage resulting from the overfeeding of cholesterol in animals.

Some support for this interpretation appears to exist in the work of Christianson[14] and other investigators who by the injection of cerebroside in animals noted its accumulation in the reticular cells of spleen, liver or lymph nodes. This lipid however, disappeared after a time. It would seem that these results demonstrate only that the reticular cells are capable of storing cerebrosides. It is difficult to regard the animal experimentation as a parallel to the mechanism of Gaucher's disease where kerasin is permanently found within the reticular cells.

Seigfried Thannhauser[1] regards the disease as a dysfunction of lipid metabolism in the reticular cells themselves. He postulates that a disturbance of the reticular cell enzymes produces an increased synthesis and storage of cerebrosides within these cells. Support is lent to this theory by his detailed analyses of the blood serum in patients with Gaucher's disease. Pick's assumption would lead us to assume that if the cerebrosides are transported by the blood stream in Gaucher's disease it should be possible to isolate them from the serum. However Thannhauser was unable to isolate any measurable amounts of cerebrosides from Gaucher's serum. The possibility of the red blood cells having a part in the transportation of cerebrosides was also investigated. No difference was noted however in the trace of cerebroside present in normal red cells as compared to that of erthrocytes in Gaucher's disease.

It is suggested that an enzyme cerebrosidase[1] important in the metabolism of cerebrosides, catalyzes the combination of lignoceric sphingosine with glucose or galactose to form cerebrosides. This is a reversible reaction and since cerebrosidase is almost inactive normally only minute amounts of cerebrosides are detected. In Gaucher's disease Thannhauser hypothesizes an increase in the activity of cerebrosidase (the mechanism is unknown) followed by overproduction and accumulation of this lipid in the involved organs.

Adult Form of Gaucher's Disease

A. Symptoms and Signs

The onset of the adult form of Gaucher's disease is often so insidious that it may be difficult for the patient to date the appearance of the first symptoms.[15] The *presenting complaints* show a marked variability. Some of the commonest ones include: weakness, minor purpuric manifestations, dragging sensation on the left side, abdominal distention, aches and pains in the bones, and patchy pigmentation of the skin. The disease is characterized by a *prolonged chronic course* with incidental exacerbations. During the interval which may last for *ten years or more*, surprisingly little incapacitation may be noted, with the patient leading a normal active life.

In a review of Gaucher's disease at the *Hospital for Joint Diseases, New York, four years ago*[15] the clinical findings in *20 patients* ranging from *12 years to 71 years* were as follows:

Clinical Findings	*Number of Patients*
Splenomegaly	19
Hepatomegaly	15
Bone or Joint Pain	12
Weakness	11

Bone Lesions or Tenderness	10
Hemorrhagic Diathesis	7
Skin Pigmentation	6
Pinguecula	5
Abdominal Distention	5
Lymphadenopathy	3
Anemia (less than 12 gms.)	13
Leukopenia (less than 5,000 w.b.c. per cu. mm.)	9
Thrombopenia (less than 150,000 platelets per cu. mm.)	10
x-ray changes in bone	9
Sternal Marrow (performed in 10 cases only)	10

1. *Splenomegaly:* A slow progressive splenomegaly is found in the majority of cases, often becoming large enough to fill the whole abdomen. However the spleen may be of moderate size and 3 cases have been described[15, 35, 36] without splenomegaly. The enlarged spleen may cause no symptoms or be responsible for abdominal distention, dragging sensation on the left side, pain due to distention of the capsule and strain on the pedicle, or dyspnea due to upward displacement of the diaphragm. One case of spontaneous rupture of a Gaucher's spleen has been reported.[37]

2. *Hepatomegaly:* Though hepatomegaly is usually present the liver is not involved as extensively as the spleen. The liver is non-tender, firm, smooth and rarely palpable below the level of the umbilicus. In the 20 cases described by *Reich et al.*[15] the liver was not enlarged in 5 patients. There are generally no clinical symptoms of chronic liver disease. Ascites and marked icterus have been observed in 2 cases only.[38, 39]

3. *Bones and Joints:* The onset of this disease is sometimes marked by severe pain in the thighs radiating down the legs to the calves. Such complaints are usually misinterpreted as rheumatic pain. Attacks of bone pain may be accompanied by local tenderness and fever and an erroneous diagnosis made of osteomyelitis. The bone pains are due to widespread Gaucher cell formation in the marrow. Bony destruction of the lower extremities may result in disturbances in gait, and even spontaneous fractures though these are rare. Involvement of the thoracic vertebrae with collapse may produce a kyphosis similar to that of *Pott's disease of the spine.* Involvement of the petrous bone may produce deafness. Swelling of the joints is an occasional symptom, and may simulate *polyarthritic* attacks of *rheumatic fever* or *rheumatoid arthritis.* No true effusion has ever been noted. The swelling completely disappears after an acute attack, without damage to periarticular structures. The joints are only involved secondarily due to bony destruction of the bone surfaces by the osteolytic process.

4. *Lymphadenopathy:* Generalized lymphadenopathy is not very characteristic of adult Gaucher's disease although it may occur in the younger age group. In contrast however lymphadenopathy is always found in the acute infantile form. A biopsy of lymph node is sometimes helpful for verifying diagnosis but for routine purposes a bone marrow smear or biopsy is more advisable.

5. *Pigmentation:* A *brownish-tan* pigmentation of the skin is observed in 30 to 40 percent of cases of the disease.[15] The pigment is true melanin. It is commoner in the older age group. The pigmentation takes the form of chloasma-like patches on the face, neck and hands. A dark brown symmetrical pigmentation of the legs extending from the instep to the knees, plus

splenomegaly is regarded by some[41, 42] as pathognomonic of Gaucher's disease. The mucous membranes are usually unaffected, pigmentation resulting only if the adrenals are infiltrated by the cerebrosides. This has never been reported in the adult form.[1]

6. *Pingueculae:* Pingueculae are wedge-shaped, brownish-yellow thickenings of the conjunctiva. The bases of these wedges are situated close to the corneal margins and their apices are at the inner and outer canthi. In *Reich's*[15] series, pingueculae were found in 25% of the patients. The pingueculae are found more frequently in older patients. *Brill*[5] thought them to be pathognomonic of Gaucher's disease.

B. Roentgenological Findings

X-ray changes are usually present in the skeleton in Gaucher's disease and are of great assistance in making the diagnosis. The following enumeration lists the areas most often observed in order of frequency.[43]

1. lower femur
2. head and neck of femur
3. vertebrae
4. upper tibia
5. humerus
6. skull
7. pelvis
8. mandible

The bones appear less opaque on x-ray because of a generalized osteoporosis. Cancellous bone destruction gives the bone a "moth eaten" or "worm eaten" appearance. There is a thinning of the cortex by expansile pressure. The cartilage and periosteum are usually not invaded. The earliest and most consistent deformity is the club-shaped widening of the lower end of the femur, called the "*Erlenmyer flask*" phenomenon. This widening of the lower end of the femur is a result of the necrosis, fibrosis, and hemorrhage produced by the Gaucher cell infiltration.[43]

The head and neck of the femur may show collapse and deformity similar to that seen in *Legg-Perthes' disease.*[43] Several cases have been described in children, and young adults. The changes consist of blurring of the epiphyseal line followed by fragmentation and flattening of the femoral head. These changes are probably due to an avascular necrosis produced by interference with the blood supply to the bone. The large number of Gaucher cells are believed to cause thrombosis and embolism of small osseous vessels.

In older adults collapse, deformity and osteoporosis of the head and neck of the femur closely resemble osteoarthritis. *Schein et al.*[50] noted roentgenologic changes in the distal part of the femur in 66 percent of their cases and changes in the hip in 40 percent.

Involvement of the vertebral column in Gaucher's disease is usually restricted to the lower thoracic and upper lumbar vertebrae. In most of the reported cases only one or two vertebrae are involved. The vertebral bodies may show collapse but no infringement of the joint space. In contrast to *Pott's disease* the intervertebral discs are not involved. The skull and mandible usually present areas of decreased density.

Spontaneous fractures of the shaft of long bones are rare. Only about ten cases have been reported in the literature.[51] Pathological fractures of a similar type may be seen in Von Recklinghausen's (osteitis fibrosa cystica) disease.

C. Hematological Findings

A pan-hematocytopenia is characteristic of most cases of Gaucher's disease. The anemia is usually microcytic hypochromic or normocytic normochromic,

the degree depending on the severity and duration of the disease.[6] A macrocytic type of anemia is occasionally observed in the terminal state.[45, 46] The leukopenia is characterized by a normal differential count. Thrombocytopenia is present in almost all cases and is responsible for the bleeding tendencies. Purpura, petechiae, ecchymosis, bleeding from the mucous membranes of the mouth or into the G.I. or serous cavities may be observed.

The exact mechanism of the hematological changes is not fully understood. In the presence of a hypocellular or aplastic bone marrow, the most reasonable explanation of the pancytopenia is on the basis of infiltration and replacement of the blood forming elements by the Gaucher cells.[16] When the degree of Gaucher cell infiltration is minimal and a hyperplastic marrow is seen it has been suggested by *Doan*[47] that the marked splenomegaly is responsible for a "secondary hypersplenism," in this disease as in other splenomegalies. The concept of an increase in phagocytes of the spleen as an etiological factor in the pancytopenia is supported by several cases of hemolytic anemia reported in conjunction with Gaucher's disease.[45, 40, 36] In these cases the presence of a reticulocytosis, and increased serum bilirubin suggested that the anemia at least in part was due to excess hemolysis of the red blood cells. The erythrocyte fragility in isotonic saline was not altered in these patients. Bleeding time, clotting time, and prothrombin time are all within normal limits.

D. Clinical Biochemistry

The biochemical blood changes in Gaucher's disease are not distinctive. Cerebrosides have not been isolated from the blood serum. Impairment of liver function is usually not noted. The total cholesterol and cholesterol ester ratio are normal except in cachectic individuals, where the total cholesterol may be low. The total phospholipids including lecithin and cephalin are normal, as are neutral fats.

An increase of urobilinogen is occasionally noted.[1] No bilirubin or abnormal pigment is present in the urine. Sometimes a slight increase in serum bilirubin is observed.

Diagnosis Bone marrow pucture is the safest and most accurate diagnostic measure.[42] In only a few cases has it failed to demonstrate the Gaucher's cells.

Splenic puncture has been used successfully in the past but since it is not devoid of danger particularly in patients with bleeding tendencies it should only be resorted to when the diagnosis cannot be made by bone marrow smears.[15]

Pathological diagnosis has also been made on liver biopsy and lymph node excision.

Differential Diagnosis The symptom complex is so diversified in adult Gaucher's disease that differentiation from other diseases producing splenomegaly, hepatomegaly, lymphadenopathy, skeletal changes, pancytopenia and pigmentation may be difficult without histological studies. Some main clinical manifestations of Gaucher's disease in relation to other diseases are outlined as follows:

1. Splenomegaly

a. *Leukemia* is eliminated by peripheral blood and bone marrow findings.

b. *Hodgkin's disease* is usually accompanied by marked glandular involvement, fever, and normal to increased number of leukocytes. Diagnosis is made by lymph node or splenic biopsy.

c. *Hemolytic anemias* including congenital hemolytic icterus sickle cell anemia and erythroblastic (Cooley's) anemia are distinguished by morphology of the red cells, fragility of the erythrocytes and bone changes in the latter two.

d. *Syphilis* may be excluded by negative serological tests, and extensive periosteal lesions on x-ray.

e. *Kala-azar* occurs only in tropical or sub-tropical countries, and Leishman-Donovan bodies can often be found in the spleen or bone marrow.

f. *Amyloidosis* may be excluded by the congo red test.

g. *Hand-Schüller Christian's Syndrome* usually presents exophthalmos, diabetes insipidus, and bony defects in the skull.

h. *Niemann-Pick's disease* occurs only in infancy.

2. Lymphadenopathy Lymphomas may be considered when the spleen and lymph nodes are simultaneously enlarged. In these cases lymph node biopsy will confirm the diagnosis.

3. Pigmentation Diseases with abnormal pigmentation, Addison's disease, hemochromatosis, von Recklinghausen's disease never show pingueculae in the conjunctiva.

4. Skeletal Changes See discussion under "Symptoms and Signs" and "Roentgenological Findings."

Prognosis The prognosis of the chronic adult form of Gaucher's disease depends on the age as well as the speed at which the symptoms develop.[1] It is poor in cases where the symptoms begin in the first decade of the patient's life. The prognosis improves in adolescent cases and may even be called good when the symptoms become manifest in the third or later decade of the patient's life.

Treatment There is no specific therapy for adult Gaucher's disease although many measures have been tried. Treatment with a vegetarian diet to reduce exogenous supply of lipoids has been unsatisfactory.[42] A remission of symptoms occurred in one case following the use of liver extract[43] but similar results have not been confirmed by others.

X-ray therapy of the long bones is a helpful palliative measure to relieve excruciating pain in the extremities.[1] In the early stages x-ray therapy may result in a transient decrease in the size of the spleen. The objection raised to x-ray therapy is that it has a tendency to aggravate the anemia and leukopenia without arresting the course of the disease.[15] Roentgent therapy is contraindicated in cases with marked anemia or very low white cell counts.

Repeated blood transfusions may be required in patients with severe anemia and hemorrhagic phenomena.

Although opinions differ as to indications for splenectomy in Gaucher's disease there is general agreement that the operation is justified in patients who are experiencing distressing symptoms due to the enlarging abdominal mass. There is convincing evidence that splenectomy is beneficial in patients with pancytopenia and a hypercellular marrow if clinical manifestations such as hemorrhagic diathesis and hemolytic anemia are present.[44] The mere dem-

onstration of a "secondary hypersplenism" of mild degree by hematologic study does not justify splenectomy. When patients do not obtain clinical or hematologic benefit from splenectomy[42, 15] the failure to improve is presumably due to marked aplasia of the marrow rather than hypersplenic effects. Splenectomy, however, is not a cure for the disease and progression of pancytopenia and bone changes have been observed in follow-up studies of patients. Nevertheless the original theory put forth by Pick[16] that splenectomy hastens the onset of bone lesions is not supported by most writers on the subject. Mandlebaum[49] noted the clearing of pingueculae and pigmentation in his case following splenectomy.

In a recent survey of the results of splenectomy in 15 cases of Gaucher's disease at the Mayo clinic[12] Medoff and Bayrd noted sustained improvement in the blood picture in 13 patients on whom splenectomy was performed, two were known to be alive 20 years after their first visit to the clinic, and one each, 16 years, 14 years, 13 years, and 11 years after their initial visits to the clinic.

Infantile Form of Gaucher's Diseases[1, 15, 25] When Gaucher's disease occurs before the age of six months a marked neurological syndrome complicates the splenohepatomegaly. The affected infant shows digestive disturbances and weight loss. The following neurological symptoms are observed; nuchal rigidity, retraction of the head, opisthotonus, strabismus, spasticity of the extremities, and increased tendon reflexes. The infant assumes the characteristic position of flexed elbows with adducted forearms held high to the body and often the knees are flexed. Dysphagia and laryngeal spasm often occur. Death usually results from inter-current infection, cachexia or laryngeal spasm about the eleventh or twelfth month.

The clinical picture of acute infantile Gaucher's disease is very similar to Niemann-Pick's disease, and to distinguish one from the other is often very difficult. Biochemical analysis is the only means available for conclusive differentiation. It is interesting to note that cerebrosides are not increased in the brain in infantile Gaucher's disease just as sphingomyelin is not increased in the brain in Niemann-Pick's disease.

The acute infantile form is fatal within six months of onset. No therapeutic measures are of any value.

Summary

Gaucher's disease is an unusual and interesting disorder of lipid metabolism, characterized by accumulation of cerebrosides in the reticulo-endothelial cells. Contrarily to popular concept the disease is more prevalent in the adult than in the infantile forms. The symptomatology is very broad due to widespread involvement. Important clinical findings are spleno-hepatomegaly, bone lesions, hemorrhagic phenomena, pingueculae, skin pigmentation and lymphadenopathy. Because the disease may present with splenomegaly and purpura it should not be left out in a differential diagnosis of obscure anemia,

particularly since it may be ruled out by a procedure as simple as sternal puncture. Skeletal involvement is as characteristic of the disease as is splenomegaly and x-rays of the bones should always be obtained in splenomegaly of unknown cause. The adult form runs a prolonged chronic course while the infantile form runs a very rapid malignant course. Splenectomy or radiotherapy are the best forms of palliation at the present time for the adult form. Therapy has no influence on the infantile form of the disease.

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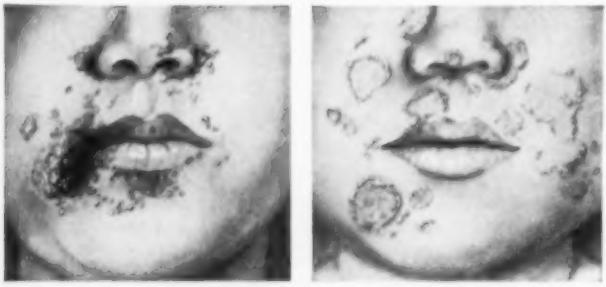
Clini-Clipping



Impetigo types—Illustrated on the left is the crusted type and on the right, the circinate type of impetigo.

Combined Cortisone-Antibiotic Therapy of Acute Virus Infections

(Preliminary Report)

MAURICE VAISBERG, M.D.
Long Beach, New York

The treatment of the usual acute virus diseases, including the common cold, by combined cortisone-antibiotic therapy was productive of rapid, effective and gratifying results in a series of forty patients. The study was made over a period of two years. Not only were the harassing, disabling acute symptoms brought under control in a matter of hours, but the entire duration of the illness was drastically shortened.

The patients were divided into three groups:

Group 1.
The findings, treatment and outcome in nine of the very severe virus infections are shown on the chart.

Group 2.
Twenty-one other patients were afflicted with the common cold in varying degrees of severity and duration.

Group 3.
Ten individuals with moderate "la grippe" symptoms served as modified controls.

The following therapeutic regimens were rigorously applied:

Group 1.

a. 2cc. of Combiotic* were given intramuscularly on the first two days. This is an aqueous suspension of 400,000 units of penicillin with 0.5 gram dihydrostreptomycin.

b. 250 mg. Terramycin* and 250 mg. Chloromycetin orally every four hours day and night for a period of from four to six days.

c. 10 mg. cortisone every twelve hours for no more than six doses or three days.

Group 2.

a. 250 mg. Terramycin and 250 mg. Chloromycetin orally every four hours day and night for a period of from two to four days.

b. 5 mg. cortisone every twelve hours for no more than six doses or three days.

* Charles Pfizer and Company, Brooklyn, N. Y.

PATIENT	SEX	AGE	GRADE SEVERITY	SIGNS & SYMPTOMS	PREVIOUS STATUS	BLOOD PRESSURE INITIAL	BLOOD PRESSURE FOUR DAYS	MAJOR RELIEF IN	COURSE	FOLLOW-UP TIME
B.R.	M	70	3	Severe headaches, chills, fever 105.	Good health.	120/80	140/90	12 hrs.	Slowly regained strength 3 weeks.	6 months.
G.G.	M	27	2	Cough, fever, sinusitis.	Overwork.	—	—	18 hrs.	Rapid recovery, to work in 4 days.	3 months.
L.S.	F	40	3	Fever, vertigo, weakness, malaise, amnesia.	Nervous tension.	80/60	104/80	48 hrs.	Cortisone and ACTH used later. Recovery delayed 3 weeks.	3 years.
L.F.	M	45	3	Pneumonitis, asthma, prostration, fever.	Extreme overwork.	104/70	130/80	16 hrs.	To gradually increasing work in 2 weeks.	1 year.
O.W.	F	41	3	Fever, cough, weakness.	Good health.	90/70	106/80	48 hrs.	Refused bed rest and worked hard 2 days but recovered in 7 days.	5 months.
J.M.	F	23	2-3	Fever, cough, weakness.	Good health.	88/60	110/80	4 hrs.	Complete cure 1 week.	3 months.
M.C.	F	64	3	Pneumonitis, weakness, fever, cough.	Hypertensive, cardio-renal disease.	180/100	200/120	18 hrs.	Full work in 10 days	4 months.
B.L.	F	60	3	Pneumonitis, congestive rales, fever, weakness.	Cardiotensive disease with fluid retension.	180/110	160/100	12 hrs.	Up and about in 5 days.	3 months.
J.L.	M	55	1-2	Asthma, slight fever, aches, sinusitis.	Allergic diathesis.	100/60	120/80	10 hrs.	Worked all through. Cured in 4 days.	4 months.

Group 3.

These were given only the Terramycin and Chloromycetin as in Group 2 a. After three or more days on this medication without any relief, 5 mg. cortisone was started every twelve hours in addition to the continuance of the Terramycin-Chloromycetin.

The results obtained were uniformly good, rapid and highly gratifying both to patient and attendant. In GROUP 1, major relief from the distressing symptoms of fever, malaise, pain, cough etc. was observed within an average time of twenty hours. In practically all the cases in GROUP 2, the patient invariably felt so much better within twelve hours, that it was with considerable difficulty that he could be persuaded to continue the medication for a day or two longer. By contrast, the individuals in GROUP 3 continued to suffer for two to five days after institution of antibiotic therapy alone. Then, within twelve hours after the addition of 5 mg. cortisone to the antibiotic regimen, marked alleviation of symptoms was noted as in GROUP 2.

To maintain the excellent results achieved, the severe cases were given ACTHAR gel in small stimulating doses of about ten units on the third, fourth and sometimes fifth days.

The chart shows a breakdown of the nine markedly ill patients. The severity of the illness was roughly proportional to the amount of prostration, temperature elevation and asthenia and is graded from one to three in ascending order. At the time of the first visit, hospitalization was a considered possibility in GRADE 1, a probable elective in GRADE 2 and an apparently imperative urgency in GRADE 3. Yet no one in either Category 2 or 3 required institutionalization because of the amazing rapidity of improvement within hours after the start of the therapeutic combination. In a general way the blood pressure reading depicted the hypotensive effect of the rampant virus disease. The subsequent normotensive elevation proceeded pari-passu with clinical improvement. The first measurement was taken on the initial visit, which was usually the worst day of the illness. The second reading was obtained four days later after major relief had occurred.

Conclusions

1. **The combination of cortisone with Terramycin and Chloromycetin seems to be effective in dramatically shortening the period of major symptoms and also the over-all duration of ordinary severe virus diseases and the common cold. In very severe cases, a short course of injectable penicillin-streptomycin may be added initially.**

2. **There is presented here what seems to be a promising, effective mode of combined hormonal-antibiotic therapy, which, if substantiated by other investigators, should do much toward avoiding a great deal of lost time, expense and suffering from previously unavoidable disability both in and out of industry.**

257 West Olive Street

The Effect of Diaparene Chloride in the Aged Incontinent

JOSEPH O. SMIGEL, M.D.*
Pinewald, New Jersey

Skin irritations, excoriations and ulcerations are an expected problem in the care of the aged incontinent. Pinehaven, which is primarily a chronic disease sanitarium, has had its share. Although, previously, treatment with sulfathiazole cream, Furacin ointment, Chloresium solution and ointment, and a combination of cornstarch and boric acid in equal portions, had been moderately helpful in preventing and clearing up mild erythemas and superficial excoriations, the results were far from satisfactory, especially in the deeper seated vesicular ulcerations and excoriations. Further, the possibility of transcutaneous absorption of boric acid, applied to chronic skin abrasions as subsequently learned from the literature,[1,2,3,4] left us no choice but to abandon use of borated therapy. A more satisfactory and safer prophylactic and therapeutic agent had been sought constantly.

A study of various combinations of para - disobutyl - cresoxy - ethoxy - ethyl-dimethyl - benzyl - ammonium chloride monohydrates** was undertaken.[5,6,7,8,9] The commercial name Diaparene Chloride is hereafter used for convenience in lieu of the unwieldly chemical name aforementioned.

Plan of Study Of a total of 148 patients at Pinehaven, the 59 who presented urinary incontinence alone, or combined with fecal incontinence, were selected for study. During the course of the study two patients expired. The age range of the remaining 57 was 43 to 91 years, with an average age of 75½ years (all but one were 65 years of age or older).

Many of the patients were chronically debilitated and malnourished. They were largely bed-ridden, and pressure points required the measures usual in such cases whether contact with urine is present or not.

The principal diagnosis (several pa-

* Medical Director, The Pinehaven Sanitarium, Pinewald, New Jersey.

** Diaparene Chloride Solution, tablets, ointment and powder, Homemakers' Products Corporation, New York, N. Y.

tients had two diagnoses) follows:—

Cerebral arteriosclerosis	8
Hemiplegia	10
CVA without hemiplegia	14
Cardiac with decompensation	8
Parkinson's	6
Multiple sclerosis	4
Diabetes	7
Cancer	4
Paralysis of spine including cordomas	4
Prostatic enlargements	1
Thrombophlebitis	1
Arteriosclerotic gangrene	1

All of the patients selected for study had skin pathology due primarily to ammonia dermatitis, or secondarily aggravated by it.

Skin pathology was classified as:

a. Erythema: in these patients irritations had begun and there was a redness and tenderness of the skin which had lasted more than 1 week.

b. Excoriations: the state of erythema had been passed and the skin was beginning to break down.

c. Vesicles and pustules: further masceration of skin by urine had produced a number of small round elevated blebs, many of which contained a purulent material.

d. Superficial ulcerations: the continuity of the skin had broken down with larger or smaller areas denuded and inflamed, but deeper tissue had not yet become affected macroscopically.

e. Deep ulcerations: in this group the ulcerative process had involved the deeper tissue—fascia, muscle.

In many cases the first four degrees of pathology were found existing in the same patient. The severest lesion in any one case is the recorded one.

Incontinent Patients by Classification

A Erythema	B Excoriation	C Vesicle Pustule	D Superficial Ulcerations	E Deep Ulcerations
25	20	4	4	4

Technique of Treatment Patients with lesions classified as Group A, were placed on Diaparene Chloride rinsed linen and powder. Ten of the patients in Group B were put on Diaparene Chloride powder and Diaparene Chloride rinsed linen and the remaining ten on powder, rinsed linen and ointment, all containing the same antiseptic. Selection was by alternate case. The cases in Group C were treated with Diaparene Chloride powder and rinsed linen, and later, whenever necessary, the application of Diaparene Chloride ointment was added. The eight persons classified in groups D & E were placed on Diaparene Chloride rinsed linen, powder and ointment. When powder was used, it was used on the bed clothes and thoroughly rubbed into them, rather than dusted on to the involved part.

In those cases where the skin pathology of urinary etiology was cleared up, some form of Diaparene Chloride, either rinsed linen, powder or both, was continued as a prophylactic measure. In one group of cases, in the erythema and excoriation category, an accidental delay in obtaining Diaparene Chloride rinsed linen suggested a difference in the pattern of treatment. It was decided to note whether or not similar

satisfactory results could be obtained without the use of the rinsed linen, and by using powder only. Initially, the impression was entertained that the rinse did not contribute materially to the prophylaxis or healing of the irritations and excoriations. After two weeks, however, the incidence of recurrence in these cases suddenly rose from nearly 5% to 10%. These recurrences were of a mild nature, but the incidence at the end of a three week period had mounted to nearly 23%, and it was then decided to return to the planned regimen of treatment—the use of powder and rinsed linen. A rapid decline in the rate of recurrences followed, and all cases responded to the combined therapy.

Results In the first two groups, results were most satisfactory with both regimens. In all cases, the skin irritation was markedly reduced within four to five days, and cleared within two weeks.

Of the 12 cases in the last three groups, the four with vesicles and pustules took no longer to clear than the simple excoriations, but required the ointment. Those with superficial ulceration took from twelve days to four weeks to respond completely. Of the remainder, deep ulcerations, two improved markedly, but failed to clear completely, and two had no apparent benefit. In all but two of the fifty-seven cases studied, urinary skin lesions were either improved or completely healed.

After forty of the cases had been cleared, twenty were taken off the Diaparene Chloride treatment. Twenty were continued on Diaparene Chloride rinsed linen and powder. After four weeks, recurrences to the first three degrees of skin pathology were noted in eleven who received no treatment, and in two who received the treatment.

Discussion It may be stated that our nursing staff was impressed with the effectiveness of the treatment. There was a decreased need for nursing time to be used in caring for infected decubitus ulcers and excoriations, and patients were, of course, more comfortable. Staff personnel also noticed a marked decrease in the usual offensive odor.

Summary and Conclusions

1. A method of prophylaxis and treatment of urinary excoriations in the aged incontinent patient is outlined.

2. In all but two of the 57 cases studied, urinary skin lesions were either improved or completely healed.

3. An added feature of importance was the control of the offensive odor usually encountered among incontinents.

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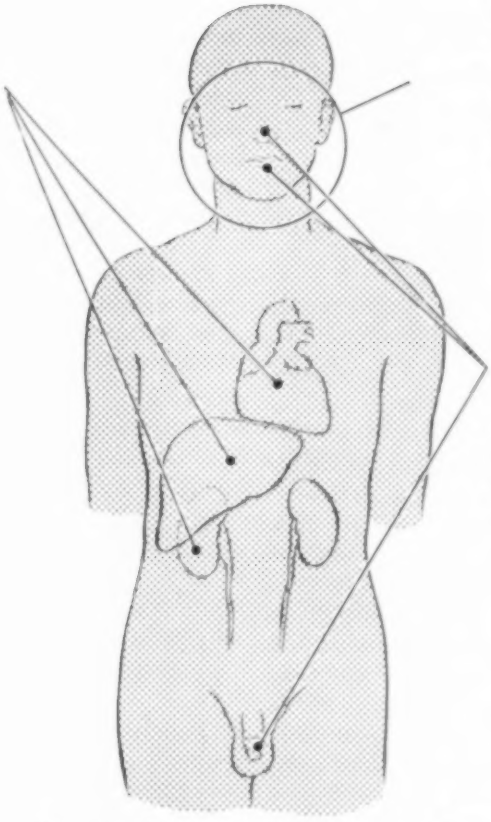
Clini-Clipping

Commonly Found
with
Chronic alcoholism
Cirrhosis of liver
Cancer
Chronic heart disease
Chronic kidney disease



Complication of
Acute tonsillitis
Acute sinusitis
Acute otitis media
Acute mastoiditis

Site of Entrance of
Causative microorganism
Furunculosis
Herpes simplex
Varicella
Vaccinia

Diagram of various aspects of erysipelas.

Body and Mind

Our novels and other books that are widely read seldom introduce physical disease as influencing or accounting for their leading characters. A current example, however, is Hervé Bazin's *Constance* (Crown Publishers, New York, 1955). This is the story of a paralytic, whose paralysis, the result of a bombardment, is complicated and aggravated by a chonic disease of the spinal cord—syringomyelia.

There have been many fictional books about the mentally ill. We are not concerned with them.

"Constance is a story of physical dissolution and of spiritual triumph" (Orville Prescott).

A story about a paralytic has just been issued by Houghton Mifflin. Its title is "Very Much Alive." In this case the paralysis resulted from an automobile accident. The author, Terry McAdam, teaches mathematics despite his great handicap at Washburn University.

Soren Kierkegaard was a very great thinker and writer whose life was conditioned by a physical affliction—he was a victim of Pott's disease of the spine and consequently hunchbacked. "The greatest of Danes and one of the greatest men in the history of the world" owed his psychological structure to this deformity. The relationship is well worked out by Theodor Haecker in his *Kierkegaard the Cripple* (Philosophical Library, Inc., New York, 1950).

In addition to his "thorn in the flesh," his hump, Kierkegaard was weak, infirm, sickly, "a grotesque sight." He was physically "a caricature," spindly-legged, deformed, ugly.

To this intellectual dynamo the world owes the inception of the philosophical system known as Christian Existentialism (in contradistinction to the Atheistic Existentialism of other thinkers), which has had such a great vogue in Europe, particularly in Germany. In the United States, Christian Existentialism has been developed theologically by Reinhold Neibuhr.

Perhaps the greatest American teacher of anatomy was Croydon L. Ford, M.D., LL.D., of the University of Michigan and the Long Island College

Soren Kierkegaard

Hospital Medical School. During his childhood he suffered an attack of poliomyelitis which left him badly crippled for life. This condition affected his whole organism, producing semi-invalidism, keeping him from the active practice of medicine, and "confining him to teaching a fundamental department of the profession."

Ford's brilliant career illustrates the triumphant mastering of adverse conditions by labor and perseverance; and more interesting still, "it shows the great advantages of an almost exclusive life-devotion to a special field of labor, *to which peculiar talents are adapted.*"

Ford manifested his aptitude for communicating knowledge to others at an early age, seventeen, when he began teaching school. Precociously, he had acquired a broad acquaintance of ancient languages in his academic schooling, "laying a foundation to be built upon as he had opportunity afterwards."

During his medical studies at the famous old Geneva Medical College, from which he was graduated in 1842 at the age of twenty-nine, Ford was fascinated by the great skill and enthusiasm of the professor of anatomy, Dr. James Webster. Webster lectured with great fluency at the same time dissecting with great rapidity. "It was said that his dexterity had more than the interest of a slight-of-hand." Ford emulated this artist's techniques in the course of his own career, and "in time came to surpass the master."

For seven years after his training under Webster and graduation, Ford was a demonstrator of anatomy in the college. After 1846 he was also demonstrator of anatomy at the Buffalo school. In 1849 he was called to the professorship of anatomy at the Castleton, Vermont, medical school.

C. L. Ford

In 1854, such was his fame as a teacher of anatomy, he was honored by the professorship in the University of Michigan, where he became a great favorite with large classes and something of an international figure.

Ford also taught at a number of Eastern colleges during his incumbency at Ann Arbor, notably at the old Pittsfield school, where he came under the influence of such men as Willard Parker, Alonzo Clark, and Pliny Earle, and also at the Bowdoin school.

In 1868, this whole-time, ubiquitous genius accepted appointment in the Long Island school, where his forcefulness and contagious enthusiasm became a legend.

In his time, Ford had no equal as a teacher of anatomy, much less a superior.

"The delicacy and sensitiveness of

Ford's organization, the pain and suffering to which he was always subject on slight exposure and provocations, and the sense of insecurity in movement . . . produced an habitual degree of caution bordering on timidity;" this doubtless accounted for his hermit-like existence in quarters closely contiguous to the dissecting rooms at the Long Island school.

Ford's published contributions to anatomical knowledge were mainly on the structure and development of the human teeth.

However, his fame rested chiefly on his dynamic teaching.

Clini-Clipping

LOCATION OF DISEASES OF THE ABDOMEN

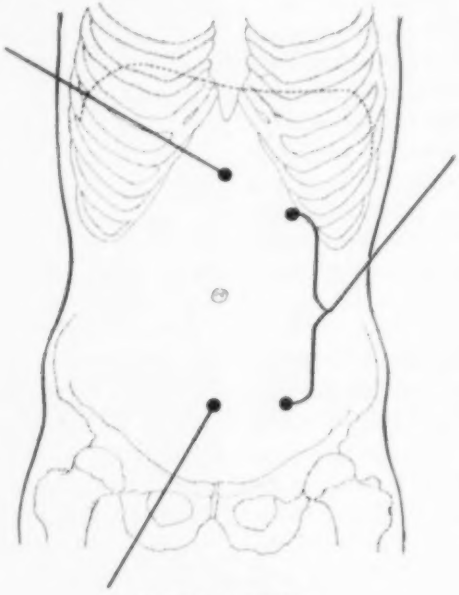
UPPER ABDOMEN

Common Diseases

Acute cholecystitis
Common duct calculi
Hepatitis
Acute renal failure
Simple active ulcer
Perforated ulcer
Pancreatitis

Less Common

Splenic infarction
Splenic rupture
Liver abscesses
Sub-diaphragmatic abscesses
Traumatic situations
Oddities among internal hernias
Spontaneous perforation of esophagus
Complications of new growths



LOWER ABDOMEN

Common

Appdendicitis, Mesenteric adenitis, Intermenstrual pain (mittelschmerz), Pelvic inflamations, Early intussusceptions, Cecal perforation, Regional iletis, Meckels' diverticulitis, Torsion of pedicle of an ovarian cyst, Ruptured ectopic pregnancy, Acute diverticulitis.

Less Common

Perforation of foreign body, of tumor, or of a segment of inflamed bowel.
Devitalized segment of bowel.

GENERALIZED ABDOMINAL PROCESSES

Gastro-Intestinal Hemorrhage

Duodenal or gastric ulcer
Esophageal varices
Gastritis
Polyps
Fibromas
Neuromas
Inflammatory processes
Intussusception
Uremia
Drug sensitivity
Polyarteritis nodosa, etc.

Diffuse Peritonitis

Rupture of a viscus
Perforated gastric or duodenal ulcer
Acute pancreatitis
Small bowel perforations following strangulation of internal hernia
Doughy abdomen of tuberculous mesenteric vascular occlusion

Intestinal Obstruction

Ileus
Fecal impaction
Left colon carcinoma
Strangulated internal hernias
External hernias
Volculus
Intestinal adhesions

Clinico-Pathological Conferences

New York University-Bellevue Medical Center Post Graduate Medical School, Department Of Medicine at Bellevue Hospital, Fourth Medical (N. Y. U.) Division

PATIENT W. P.

This was the 1st Bellevue Hospital admission of W. P., a 36-year-old single alcoholic unemployed male with Bowery address. He was admitted to medical service on 6/16/52 complaining of anterior chest pain of 5 days duration.

Present Illness One month PTA, patient developed anorexia and began losing weight. Had lost 15 lbs. PTA. *12 days* PTA, he developed cough productive of greenish-yellow sputum, malaise, chills, headache and night sweats. Developed moderate exertional dyspnea. *5 days* PTA, he developed sharp pain in right anterior chest aggravated by deep inspiration and cough.

Past History Patient had pneumonia at age 9 resulting in empyema and surgical drainage of left pleural cavity.

Admission Physical T = 99.8 P = 82 R = 18 BP = 140/80

Patient was a well nourished, well developed, white male sitting comfortably in bed, not appearing ill and in no distress. Px including neurological examination were within normal limits except for an old surgical scar on left posterior chest, diminished BS, medium moist rales, wheezes over both posterior bases and more marked over lower ⅓ of the left posterior chest.

Course in Hospital Fluoroscopy revealed infiltration in right middle lobe and some increased bronchovascular markings at the extreme right base. Left lung and both apices were clear. Cold agglutinins were negative. Blood count revealed anemia, WBC 12,300 and a few atypical lymphocytes. He was febrile throughout hospital course.

On the *1st* hospital day, he began complaining of numbness and weakness in his feet and hands. Over the next four days these symptoms ascended up legs and arms. Aureomycin was started on the 3rd day. By the *fifth* day weakness of left leg made walking difficult. There was diminished superficial pain sensation over both hands and dorsum of arms to just above elbows, of right foot and left foot and leg to just above knee. DTR's were equal bilaterally but slightly depressed. There were no pathological reflexes.

By *8th day*, he was complaining of severe aching pains in shoulder girdle

muscles and back. He was unable to sit up or walk without assistance. Numbness in legs and arms persisted without paraesthesias. Pleural pain was gone. Cough and expectoration were minimal.

On the *8th day*, neurological examination revealed:

I. *Cranial nerves*—normal

II. *Motor function*

A. *Gait, station, attitude:* unable to walk. Could stand only with assistance. Was very unsteady.

B. *Muscle power:* considerable weakness of extremities and trunk without complete paralysis. No atrophy.

C. *Coordination:* poor probably due to muscle weakness.

D. *Involuntary movements:* none.

III. *Reflexes*

A. *DTR's:* absent in both lower extremities and markedly decreased in upper extremities.

B. *Superficial:* abdominals, cremasterics absent.

C. *Pathological:* none.

D. *Meningeal:* none.

IV. *Sensory exam.*

A. *Touch:* normal.

B. *Superficial pain:* decreased over arms above elbows and legs above knees. *Deep pain* normal.

C. *Temperature:* normal.

D. *Position:* absent both feet, present upper extremities.

E. *Vibratory:* possibly decreased in feet. A spinal tap was performed.

On the *10th* day, pt. was complaining of severe back pain along spine. A right facial paralysis (total) was present. No papilledema was present nor did it develop at any time during course. Corneal reflexes and touch over face were diminished. Pt. was somewhat hoarse. Superficial pain was impaired over both arms, shoulders, chest and legs. Touch was impaired over hands and legs up to groin. Position and vibration were impaired over hands and feet. Motor power was decreased in arms and shoulder girdles and legs could not be elevated more than 4". DTR's were depressed without pathological reflexes. Pt. was mentally normal, alert and well oriented. He was transferred to neurological service.

On *11th day*, patient was still mentally clear. Left facial palsy (upper and lower) was noted. Right facial palsy was less severe. Voice was more hoarse, respirations were labored with use of accessory muscles. Flexors and extensors of neck were weak. A severe, flaccid quadruparesis was present. The left triceps was the only DTR which could be elicited. Calf muscles were tender. Sensation was diminished as before. A spinal tap was performed. He was placed in a respirator.

On the *12th day*, facial palsy had nearly disappeared. There was less difficulty in swallowing. He continued a cough productive of 3 cupfuls o.d. of a white, tenacious sputum. He was noted to be disoriented and was hallucinating. Coarse rales were heard over entire right chest. Pulse had been about 120 for 4 days but temp. was not elevated.

By the *15th day*, mental symptoms had increased to include depression with suicidal tendencies. Later in day, he became cyanotic and unresponsive. Breathing was labored. The cyanosis partially cleared with O_2 inhalation for a short time but later reappeared. Respiratory tract became obstructed with large amounts of sputum patient was un-

Laboratory

Urine

Date	Cath.	Color	S.G.	pH	Alb.	Sug.	Cells
6/17/52	no	straw	1.012	Alk.	tr.	0	0

Blood

Date	Hb.	RBC.	WBC.	Tr.	P	L	M	E	Smear
6/17/52	11.0	3.9	12.3	16	57	15	9	2	Few atypical lymphos; plat. adeq.
6/24/52	14.0	4.9	8.0	13	55	24	7	1	Platelets increased

Spinal tap

Date	IP.	F.P.	Character	Pandy	Cells	Protein	Sugar	Cl.	Wass.	Colloidal Gold
6/23/52	88	60	Crystal clear	2+	20-40 polys	118	68	120	neg.	000000000
6/26/52			Crystal clear		6 monos nuclear					

Miscellaneous

Mazzini neg.
Stool guaiac neg.
Cold agglutinins neg. 6/28/52.
No AFB studies ever reached CS laboratory.

able to cough up. In spite of suction, O_2 and artificial respiration, respiration became more difficult, cyanosis more severe and patient expired.

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Pathological Findings

This is a case of a 36-year-old man who developed the "Landry-Guillain-Barre" syndrome during the course of an acute pulmonary infection. Multiple sections through the brain stem including many of the nuclei of the cranial nerves fail to show any distinctive histological change, a finding which is usual in this condition.

Unfortunately small portions of the brachial plexus were the only peripheral nerves available for histologic study and these show neither the demyelinization nor fatty change which are considered to be characteristic of the "Guillain-Barre" syndrome. Viral culture studies on brain tissue, as in other cases, were negative as were bacteriological cultures of the meninges. The presence of the syndrome cannot be confirmed or excluded by the pathologic findings.

The pulmonary infection proves to be due to active tuberculosis with some recent spread to the portal lymph nodes and liver. There are also areas of organizing pneumonia and chronic bronchitis chiefly in the right middle lobe that are non-tuberculous in nature. The other pathological findings are incidental and of no particular interest.

References

1. Visceral lesions in infectious polyneuritis. Am. J. Path. 17:469, 1941.
2. W. Haymaker and J. W. Kernohan: The Landry-Guillain-Barre Syndrome. Medicine 28: 59, 1949.

PATIENT J. J.

This was the first B. H. admission (10/15/52) of J. J., a 65-year-old separated colored male to the Urological Service. His chief complaint was inability to pass water for 24 hours and pain on urination for several weeks.

P.I.: Patient was never hospitalized previously. For several weeks PTA he had nocturia and dysuria. One day PTA, he became unable to void. 2 months PTA, he had severe shaking chills at home.

PH and R.O.S. Chancre 1911, without treatment.

Right direct inguinal hernia of several years duration became non reducible several weeks PTA.

Cardiovascular: Patient had mild exertional dyspnea of 3 weeks duration. No PND, orthopnea or ankle edema. No history of hypertension or rheumatic fever.

Admission Px: T—99.6 P—100 R—20 BP 100/30—Patient was a well nourished, well developed Negro male in no acute distress. Pupils were equal and reacted to l & a. Teeth were carious and in poor repair.

Chest: Slightly emphysematous with decreased expansion. Dullness to percussion with distant to absent BS over both posterior lung bases. Numerous moist inspiratory and expiratory rales heard over these areas and also over right middle lobe. Inspiratory high pitched wheezes were heard throughout left lung fields. *Cardiovascular:* PMI in 5 ICS well outside MCL. Heart thus clinically enlarged to left. There was widening of supracardiac dullness, especially to the left. There was a soft to and fro murmur heard over entire precordium but heard best over right 2 & 3rd I.C.S. at right sternal margin. No transmission of murmur to neck. The first aortic sound was not audible. No ankle edema.

Abdomen: No organs palpable. A non reducible left direct inguinal hernia was present.

Genitalia: Bilateral hydroceles noted.

Rectal: Prostate enlarged 2 to 3+, smooth, of normal consistency.

Course in Hospital: Patient was found to have 500 cc. clear residual urine on catheterization. On 2nd hospital day patient was cystoscoped which was followed by chills but no fever.

Routine chest x-ray taken pre-operatively for prostatectomy revealed deviation of trachea to right, enormous dilatation of ascending transverse and thoracic aorta, blunting of costophrenic sinuses and tenting of diaphragms. The blood serology was returned as 4+. He was started on penicillin.

On 10th hospital night, patient had episode of PND. Venous pressure was 250 mm H_2O and decholine circulation time 43 seconds. Bouts of PND and exertional dyspnea became more frequent. On 13th hospital day, neck veins were moderately distended, lungs were as before, a tender liver was palpable at costal margin. No sacral or pedal edema was present. EKG suggested anterior myocardial damage of undetermined duration. Patient was digitalized and a perineal prostatectomy performed on 16th day.

On the 19th hospital (3rd p.o.) day,

patient had a sudden, severe chill, hematuria and spike of temperature to 103.4 pulse to 128. Patient continued to run irregular febrile course during remainder of his life with occasional spikes to 105°. From the day of admission until termination of his course, he received antibiotics constantly but no one antibiotic was continued usually for more than two or three days at a time. He received Streptomycin, Gantrisin, Terramycin, and Penicillin in various rotations. No cultures of any kind were ever taken.

On 21st day, temperature was 105.2, pulse regular 104. There was moderate dyspnea, orthopnea and cyanosis. Lungs showed congestive changes as before. Liver was 2 fbths. below costal margin. BP was 100/10 bilaterally. Chills were noted. Nasal O_2 was administered. Later on 21st day, it was noted that left radial pulse was palpable but right was not even though both brachial pulses were palpable. There was slight pain in right wrist which gradually involved most of right arm and became severe. He developed swelling and redness of middle ⅓rd right arm and limitation of motion. Tip of fingers became cold and blue. Repeated right stellate ganglion blocks were done q.6 hrs. for 3 treatments. The fingers became warmer, radial pulse palpable and pain less.

Repeated stellate blocks were performed. Patient also required transfusion, K therapy and treatment for nitrogen retention.

On 33rd hospital day, temperature spiked to 103, pulse to 120. BP was 120/0. Patient was very restless. Neck veins filled from below. Congestive changes were still present in lungs. Both hands and feet were edematous. Right radial pulse was not palpable. On 34th day, he was confused and stuporous. On 35th day, he became comatose and respiration was Cheyne-Stokes. He was dehydrated and had

Laboratory Data

Urine Date.	Charact.	Sp.G.	Alb.	Sug.	rbc.	wbc.	react.	other
10/16/52	clear	QNS	neg.	neg.	30-40	2-4		
11/7/52	cloudy		neg.	neg.	5-6	1-2	alk.	gran. casts
11/18/52		1.032						

Blood Date	wbc.	Hb.	Tr.	P	L	M	E	B	Serology Mazz.	Wass	VDRL
10/17/52		10.5							4+	4+	Pos. 1 to 10
10/21/52	11,400		4	62	28	6	4	0			
11/7/52	12,950	11.0	6	60	26	8	3	1			
11/18/52		12.7									

Blood Chemistries

Date	NPN	Sug.	CO_2	Cl	Na	K	A/G	Prot.	Acid P'tase	Alk. P'tase
10/17/52	39	81	46				2.3/2.3	4.5	1.8	15.75
11/5	72		46	114	155	3.6				
11/6	105		46	100	146	3.1				
11/7	96		43	100	140	3.3				
11/10	75		48	104	140	3.0				
11/14	84		32	97	145	3.9				
11/18	112		36	112	155	4.6				

frequent muscle twitching and diarrhea. PR=VR=130, regular, switching suddenly to VR of 80 with frequent runs of APC's. Digitalis was cut, 10 cc. of Ca gluconate was given i.v. He expired quietly on 35th day.

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Pathological Findings

The pathological diagnosis of the surgical specimen was *adenatoid hyperplasia of the prostate* ("benign hypertrophy"). The prostatic bed was found to be slightly infected at necropsy but infection of the regional veins could not be demonstrated.

The source of the sepsis was *acute bacterial endocarditis of the aortic valve.* Syphilitic aortitis was confirmed as well as evidence of *aortic insufficiency* (endocardial insufficiency pockets). Although the valves are ulcerated and perforated as the result of infection, it appears likely that insufficiency of the valve antedated the infection and was due to syphilis. The reasons for this are:

1) The wide pulse pressure as well as the diastolic murmur at Erb's point were recorded prior to the symptoms of bacterial infection.

2) Although there was no frank separation of the commissures, the annulus had a marked degree of dilatation.

Gram-positive cocci were present in the vegetation; culture yielded growth of several contaminants or secondary invaders. A septic infarct was present in the left kidney. In uninfarcted portions of the kidney, there was some slight increase of cellularity of the glomeruli. Nevertheless there was no sufficient anatomical change to account for renal insufficiency. For this reason we regard the azotemia as of pre-renal derivation. Embolism had taken place in the spleen and right radial artery.

Reference

S. Koletsky: Syphilitic Cardiovascular Disease and Bacterial Endocarditis Am. Heart J. 23, 208, 1942.

Management of Burns

In our complex mechanical society the opportunity for thermal injury is ever present, at home, at work, and at play. Major burns, those involving over 5 to 10% of body surface, require immediate hospitalization and extensive measures. The prevention of shock, establishing an adequate airway, and the control of fluid and electrolyte balance take precedence over the local treatment of the burn itself. The office management of burns is confined to the immediate appraisal of major burns and the definitive local therapy of minor burns. Small burns of the hands, face, or genitalia may require hospitalization.

Estimating The Depth of Injury The depth of injury depends upon the temperature of the heat source, and the duration of exposure. Exposure to extremely high temperatures for only a fraction of a second may produce nothing more than a first degree burn, while a comparatively low intensity source over several seconds may produce a deep third degree burn. There are several different classifications for grading the depth of injury; the most generally accepted in this country is as follows.

First Degree Burn Appearance—erythema without vesiculation, or edema, best exemplified by the common sunburn. Pain is moderate, and systemic symptoms may be quite severe when large areas are involved. These symptoms of severe headache, arthralgia, nausea, and generalized malaise, are not related to histamine release, as was once postulated. Sunburn can easily be prevented by the use of sun screening agents, the best of which is 5% para-aminobenzoic acid in a suitable base. Since first degree burns involve only the stratum lucidum and corneum, healing is uneventful and accompanied by a dry flaky desquamation of the injured tissue.

Second Degree Burn Appearance—erythema plus vesiculation. The vesicles may take several hours to appear, and their walls will vary in thickness, depending on the depth of injury and level of separation. Pain is a prominent symptom, since the terminal cutaneous nerve endings are involved. The base of the vesicle is extremely sensitive to touch, and capillary blanching can be seen on light pressure. The depth of injury may be anywhere from the deeper layers of the epidermis to the junction of the corium and subcutaneous tissue. In superficial second degree burns epithelial regeneration is rapid, from the numerous rete pegs, and scarring is minimal or absent. Hyperpigmentation may persist for years, be-

cause there are fewer cells covering the pigment containing basal layer. Deep second degree burns heal more slowly, by the proliferation of epithelial cells lining the deeply placed and widely spaced skin appendages—hair follicles, sweat, sebaceous, and apocrine glands. Scarring and hypopigmentation result.

Third Degree Burn Appearance—anything from vesiculation to charring. Vesiculation is uncommon, and if present is differentatied from that of second degree by the "boiled egg white" appearance of the base of the vesicle. Capillary return is absent, and sensation is lacking, since the terminal nerve endings have been destroyed by the full thickness coagulation of epidermis and dermis. Slow prolonged heat will desiccate the skin causing it to crack, fissure and appear dark brown or black, leaving little doubt as to the depth. Pain may be very slight in the early phase of a third degree burn, and as pointed out previously, sensation is absent in the burned area. Healing is always by granulation and scar tissue formation. Centripetal epithelization from the wound edges will cover small defects, but early skin grafting will decrease the amount of scar tissue formation and its concomitant contractures.

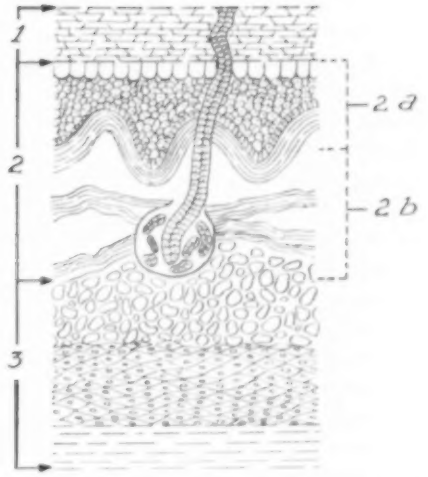
Local Treatment There are many different methods of handling burns, with the choice of dressing depending on the type of burn, its location, and the physician's personal preference.

1. Eschar Coverage
   - A. Physiological eschar — "exposure treatment"
   - B. Artificial eschar
     - a. Tannic acid—seldom used
     - b. Dyes — gentian violet, and "triple dye"
     - c. Powdered aluminum, waxes.
2. Dressing Coverage
   - A. Pressure dressings
   - B. Wet dresings and baths
   - C. Ointments and impregnated gauzes
   - D. Enzymatic debriding agents

1A. The formation of a physiological eschar is the basis of the exposure method of burn treatment, which is gaining in popularity. In most civilian burns gross contamination by earth and particulate matter is uncommon. These wounds are relatively clean, and actually sterilized by the injury itself, until some well-meaning first-aid protagonist applies a dirty dressing, butter, grease, or even ink. The exposure treatment entails merely removing these secondary contaminants gently with warm saline and surgical soap. The wound is then exposed to the air. In 48 hours second degree burns are covered by a firm dry coagulum, from the desiccation of surface tissue exudate. With third degree burns there is no surface exudate; the eschar forms from the drying of the full thickness burned skin, which is usually complete by 72 hours.

The obvious advantage of this form of therapy is its simplicity. In 14 to 21 days epithelium has regenerated beneath the crusts of second degree burns. By 10 to 21 days liquefaction occurs beneath the third degree burn eschar, enabling its removal. The underlying granulation tissue should then be grafted, unless it involves only a very small area.

The major drawback to the exposure method is that the crusts often crack, permitting bacterial contamination and infection under the protective barrier. When this happens some other method of treatment must be instituted to drain



Burn Classifications

1-First degree burn

2a-Second degree burn (Superficial)

2b-Second degree burn (deep)

3-Third degree burn

Modified from Matthews "Surgery of Repair"

the pus and control the infection. Wet dressings are well suited for this purpose. Burned contiguous surfaces, or areas that cannot be kept free of all clothing or bedding contact do not lend themselves to the exposure method. Those crossing flexion creases soon become fissured and infected. The exposure method is particularly good for burns of the face, where the dressings are always a very troublesome problem.

1B. Artificial eschars are produced by agents which coagulate the burned skin. Adsorption of toxic products from the necrotic burned tissue is decreased, the eschar is more pliable, and the agent used is usually antiseptic. Tannic acid, and tannic acid silver nitrate combinations have been largely abandoned in the treatment of all but small burns. It has been demonstrated that tannic acid is a hepatic toxin when it is adsorbed. If this method is used the eschar must be checked frequently for cracks and elevation of the edges. These must be retreated with the tanning solution to prevent infection under the crusts.

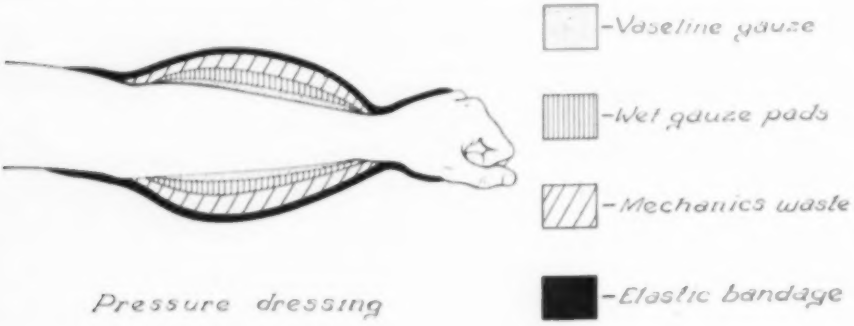
The various dyes produce a similar coagulum, and in addition have an antiseptic property. They were originally introduced to prevent the early streptococcal infections of wounds, so commonly seen in the past. Powdered aluminum dusted on burns has been recently demonstrated to rapidly produce a durable, more pliable eschar. It is believed by some that healing is retarded under any eschar, in that peripheral epithelization is prevented from its normal advance.

2A. The Koch pressure dressing consists of a layer of vaseline gauze placed over the burned area, then several layers of moist gauze pads, followed by a thick layer of mechanics waste, all held in place by an outer layer of elastic bandage. This original dressing is left in place for 10 to 14 days. It is extremely important that this dressing be applied under sterile

technique. The advantages of the compression dressing are that it keeps the injured part at rest, reduces fluid loss from the burned surface, prevents reinfection and adsorbs any exudate into its bulk. Subsequent dressings are applied once or twice a day, depending on the condition of the wound.

Mechanical debridement, with sharp instruments, performed at each dressing change is the quickest and surest way to clean up a third degree burn. Desquamated epithelial debris, necrotic tissue, exudates all mix to make an excellent culture medium for even the most discriminating bacteria.

The pressure dressing works well for burns of the extremities. If it is used for the hands, the position of immobilization is of great importance. The hand must always be placed in the position of function—40 degrees of dorsiflexion at the wrist, flexion at the proximal finger joints, and abduction of the thumb from the palm. The only exception to this dictum is with burns of the hands in infants and young children. They tolerate immobilization in an extended position, which is a fortunate thing. Healed burns, or grafted areas on the palmar surface in children require months of splinting in extension to prevent contractures. These contractures form readily because the normal tissue grows faster than the grafted or scarred tissue.



Pressure dressing

Position of function for immobilized burned hand

2B. Wet dressings and baths. Where applicable the saline bath twice daily, followed by wet dressings is an excellent method of managing burns. Dressings are allowed to soak off painlessly in the bath, thus eliminating one of the most trying phases of burn care. Active motion of joints in the bath is possible and encouraged, thus making this form of tretment particularly well suited for burns of the hands. After or during each bath the wounds are gently debrided with forcepts and scissors. Fine mesh gauze placed directly on the wounds between dressings acts as a debriding agent when it is removed.

2C, D. Ointments and impregnated gauzes. There is a wide choice of antibiotic ointments and impregnated gauzes. Zeroform gauze, scarlet red gauze, and plain vaseline gauze provide excellent coverage for first and second degree burns. Tamerin, Metzger and Wright[1] have found a gauze impregnated with aureomycin offers an extra safeguard against infection.

Reepithelization is usually uneventful unless infection develops. Superficial infections may respond to an antibiotic suited to the contaminating bacteria. If these fail, wet dressings should be instituted. Cod liver oil dressings have been advocated to hasten the separation of third degree eschar. Various enzymatic debriding agents, such as Tryptar and Varidase, are of considerable help in cleaning up burns. Unfortunately, there is no preparation available which will dissolve the collagenous attachment of a necrotic eschar to the underlying healthy tissue, without harming the living tissue.

1. Tamerin, Joseph A., Metzger, William I. and Wright, Louis T.: A New Aureomycin Dressing, The Am. J. of Surgery, [86:325 (1953)].

Summary

In general, First degree burns heal well without any specific dressing. Second degree burns will heal uneventfully, if protected from contamination. Infection may convert a superficial burn into a deep one. The amount of scarring and pigment changes in second degree burns depends upon the depth of the injury. Third degree burns involve a twofold problem—the separation of the burned tissue, and the healing of a granulating wound. Healing is always accompanied by scar tissue formation. Early skin grafting will reduce the sequelae of third degree burns.

EDITORIALS

Master Coordinators

Some medical historian, writing of one of the books of that voluminous author, Galen, has said that it makes the Holy Bible look like a pamphlet. But some of our present day treatises make Galen look like a pamphlet.

These huge treatises are geared to the modern world of medicine, covering all the specialties. For we seem to have reverted to the situation that existed in ancient Egypt, where specialization, according to Herodotus, was carried to a point where there was a physician for every part of the body. History has repeated itself, for "some of our ablest practitioners even devote themselves in great measure to one disease" (Cecil). There is one modern treatise on internal medicine, based upon a far-flung galaxy of specialties, which has one hundred and thirty contributors, chosen because of their individual preoccupation with particular subjects. This is sound doctrine today, when it is "almost impossible for a single individual to master the entire field."

But there still has to be a master coordinator, as has always been the case. He furnishes the practitioner with an indispensable means of orientation whereby the integrity of one's perspective may be properly maintained.

Thus history repeats itself again, for this was the very service rendered by Celsus to the practitioners of the first century A.D. And this service of Celsus, who lived in the reign of Tiberius Caesar, was extended for hundreds of years, for his *De re Medicina* was one of the first books to be printed (1478). It was a most comprehensive work, citing 72 medical authors. There have been 105 editions of Celsus, the last authoritative one in 1915 (Friedrich Marx).

Incidentally, the mind of Celsus reached beyond the knowledge of his day, for he "sensed" the return of the blood current to its starting point before Harvey *(sanguis cursus revocetur.*

We like to fancy that there is a Celsus in every age. Certainly every age needs one.

A New Look at Colchicine

The specific rapid response to colchicine of a gouty toe is classical medical fact. High uricemia is characteristic of gout. This high concentration of uric acid and precipitation of urate in acute arthritic episodes are now associated with adrenocortical deficiency. Certain stress factors, in accordance with the doctrine of Selye, at first increase the adrenocortical hormone, the level later becoming subnormal. It would therefore seem that the effectiveness of colchicine in gout is due to its reversal of the adrenocortical behavior. If this is so, colchicine should have a wider range of usefulness in disorders other than gout characterized by similar hormonal aberration.

Passing of Prostitution

The Chief Magistrate of New York City, in his annual report on the Women's Court, states that arrests in 1954 dropped to 2,202; they numbered 2,286 in 1953. He properly emphasizes that prostitution is a moral, social and medical problem, not a criminal one, to be dealt with prophylactically, not punitively. By the broadening of the city's prevention and rehabilitation programs the abolition of the Women's Court should finally be feasible.

The new approach toward delinquent women is a welcome one.

The Physicians' Home

The Physicians' Home is a corporation organized in 1919 under New York law to give financial and other assistance to aged and indigent physicians and their wives, widows, and needy minor children. Its appeal should take precedence in the minds of active practitioners, philanthropically disposed, to any other.

Illness or misfortune have brought poverty and indigency to many of our most highly esteemed practitioners who never dreamed of reaching such a terminal state. It is greatly to the credit of the profession that it has kept pace with the great expansion of this benevolent agency, supporting it energetically along with other friendly sources of aid and maintenance.

Action taken by the home is always in cooperation with county medical societies. Most cases are also investigated through local social service organizations. Cases are handled promptly by an executive committee of the corporation, which meets monthly. Cases receiving aid are reviewed periodically.

Beneficiaries are expected to agree to transfer and assign to the corporation any funds or property which they may at any time own, in order to assure the equitable result of reimbursement to the corporation for its expenditures on any guest.

Many prominent physicians have served as directors and trustees. The 27 directors, who are approved by the Council of the Medical Society of the State of New York, conduct the general management of the Home's business. The trustees, who report their activities to the board of directors, are responsible for the care, custody, and management of the property of the corporation. Directors serve for three years, trustees for five.

The Home has no physical existence. Elderly physicians and dependents are much happier when maintained in familiar surroundings or with other relatives. The corporation aims to give as-

sistance directly to the beneficiary.

Beneficial aid is extended only to a physician who is a citizen of the United States of America, who continuously resided in New York State for ten consecutive years, and who had continuous membership in a county medical society of New York State for ten consecutive years, or to the wife, widow, or dependent child of such a physician.

The Physicians' Home deserves our individual and collective sponsorship. The President, Dr. Beverly C. Smith, may be addressed at 63 East 84th Street, New York 28, New York.

Clini-Clipping

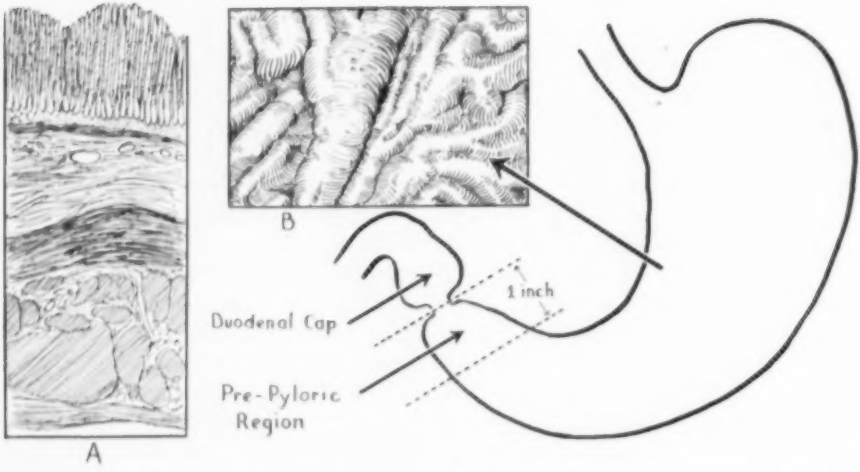


Diagram of stomach and first portion of the duodenum. The arrows show the common locations of peptic ulceration. The prepyloric region is defined as the terminal inch of the stomach—not including the pylorus itself.

A. Vertical section of the normal wall of the stomach.

B. Mucous membrane constricted showing the rugae.

PUBLIC HEALTH, INDUSTRIAL MEDICINE AND SOCIAL HYGIENE

EARLE G. BROWN, M.D.*

Observations on the Epidemiological Spread of Antibiotic-Resistant Staphylococci

H. F. Dowling and associates (*American Journal of Public Health*, 43:360, July 1953) report a study of the nose and throat cultures of 54 patients at the time of discharge from a contagious disease hospital, and for varying periods up to twenty-one weeks after discharge, and from 209 household contacts of these patients during the period of study; cultures were also taken from the hospital personnel at various times during this period. The staphylococci found were studied in regard to their sensitivity to penicillin and aureomycin; staphylococci were considered resistant to penicillin if one or more units per ml. of penicillin were required for their inhibition; and were considered resistant to aureomycin if they required for inhibition one or more mg. per ml. of aureomycin. At the time of discharge from the hospital, 74 per cent of the cultures from patients contained staphylococci, and 33 per cent of these staphylococci were penicillin-resistant at that time; both the percentage of staphylococci in the cultures and the percentage of penicillin-resistant staphylococci decreased in the weeks following the patients' discharge from the hospital. In the household contacts of these patients staphylococci were found in 33 per cent of cultures, and 30 per cent of these staphylococci were penicillin-resistant. In hospital personnel, 85 per cent of staphylococci in nose and throat cultures were penicillin-resistant. In the patients, 78 per cent of staphylococci from nose and throat cultures were aureomycin-resistant at the time of discharge from the hospital; but this decreased to 14 per cent by the seventh week after discharge. In household contacts, 7 per cent of the staphylococci in their cultures were aureomycin-resistant, and in hospital personnel, 61 per cent of staphylococci were aureomycin-resistant. This study indicates that antibiotic-resistant staphylococci may occur in the nose and throat culture of a person as a result of the use of the antibiotic in the treatment of that per-

Brown

* Commissioner of Health, Nassau County, N. Y.; Cons. Contagious Diseases, Meadowbrook Hospital, Hempstead, N. Y.

son, or as a result of transfer of a resistant strain to the person in a hospital or "in the community." In order to prevent the development of antibiotic-resistant strains of staphylococci, the authors advise that the antibiotics should be used only "on clear and sufficient indication" and not for "a whole host of minor illnesses"; and also that in the hospital use of antibiotics, special care should be taken to prevent the spread of resistant strains.

COMMENT

It has been anticipated that the indiscriminate use of the antibiotics would result in strains of various micro-organisms able to resist the bacteriostatic action of these antibodies.

The authors' warning that good judgment be exercised in the use of antibiotics and that physicians refrain from using them for minor illnesses easily controlled by other means, is well taken.

The number of staphylococcal infections which are not amenable to treatment with penicillin because of their ability to produce penicillinase, has increased appreciably. This same tendency is being observed, to a lesser extent, with other antibiotics such as chlortetracycline and oxytetracycline.

E. G. B.

Berylliosis

J. M. deNardi and associates (*A.M.A. Archives of Industrial Medicine and Occupational Hygiene*, 8:1, July 1953) report a study of 468 patients with various types of acute and chronic berylliosis, seen in the beryllium industry in the last twelve years. The great majority of these cases were of the acute type, including acute respiratory tract disease—pneumonitis and tracheobronchitis—and dermal and ocular manifestations. Thirty-seven cases of chronic berylliosis were also studied including 35 pulmonary cases and 2 dermal cases. Acute pulmonary berylliosis was the most serious form of acute beryllium poisoning; the disease may be of the fulminating type with onset after brief, massive exposures to beryllium, but is more frequently of the insidious type following prolonged exposure to smaller concentrations of beryllium. The symptoms of pulmonary berylliosis include cough, usually non-productive, dyspnea, substrenal pain, anorexia, loss of weight and general malaise. Chest expansion is limited and vital capacity is decreased, but there is no rise in temperature. Of 93 patients with acute pulmonary berylliosis, there were 10 deaths, a mortality rate of 10.7 per cent. In acute tracheobronchitis, cough, substernal discomfort, tightness of the chest and some exertional dyspnea are the chief symptoms; there were no deaths in this group of patients. Beryllium dermatitis may be either of a primary contact type, or an allergic eczematous contact type; involvement of the mucous membranes of the eyes and nasopharynx was observed in about half the cases of dermatitis; there were some cases of acute beryllium ulcer, usually due to penetration of soluble beryllium salts into a previous break in the skin. All but one of the patients with acute pulmonary berylliosis who recovered showed complete clearing of the pulmonary lesions on follow-up roentgenographic examination; one showed persisting pulmonary fibrosis with decreased vital capacity. In addition 35 persons with chronic pulmonary berylliosis were studied; 12 of these cases were due to non-occupational exposure—exposure to air pollution in the vicinity of a beryllium extraction plant or exposure to "household concentrations" from soiled working clothes of beryllium plant workers; there were 6 deaths in this group. In the group in which the pulmonary disease was due

to exposure in a beryllium plant, there were 2 deaths. In 2 cases of chronic beryllium dermatitis in the form of cutaneous granuloma the lesions were similar to the pulmonary granulomas seen in chronic pulmonary berylliosis. In the study of these cases it has been found that beryllium remains in the tissues of the body and is excreted from the body for many years after exposure to beryllium has ceased. An integrated industrial hygiene, medical and safety program in the beryllium plants studied, the authors report, has reduced the incidence of cutaneous berylliosis in workers in the plants from 25 per cent to 2 per cent, and an incidence of respiratory berylliosis "almost to zero" in recent years.

COMMENT

The advent of fluorescent powders and fluorescent lamps has focused attention on illness attributable to beryllium and beryllium compounds. Although beryllium metal and its ions are not considered toxic, it may, however, act unfavorably in certain instances and produce respiratory, dermal and ocular symptoms in persons exposed to it.

Proper industrial hygiene has greatly reduced its hazard among workers.

E. G. B.

Nickel Carbonyl Poisoning

J. L. Carmichael (*A.M.A. Archives of Industrial Hygiene and Occupational Medicine*, 8:143, Aug. 1953) reports a case of nickel carbonyl poisoning and presents a review of the literature. Nickel carbonyl has been used comparatively little in industry in the United States, more extensively in Germany and England. Its use, however, is increasing in the United States, so that industrial physicians in this country may, in the future, see more cases of this type of poisoning. In the case reported, the workman was exposed to the nickel carbonyl fumes when opening a chemical reaction vessel. The first symptoms were faintness and dizziness, which were promptly relieved when he was removed from the contaminated air. The next day, however, he developed a cough, with a feeling of suffocation and chest pain; his breathing was very rapid. Under treatment, he made a good recovery, and six months after the accident, he shows no sequelae. The symptoms in this case are typical of nickel carbonyl poisoning as described by others in the literature—the preliminary dizziness and general malaise, followed in twelve to thirty-six hours by severe respiratory symptoms. In some of the reported cases, the patient has died and autopsy has shown that the chief pathological changes were in the lungs. In patients that recovered, no sequelae have been reported; if fibrosis of the lungs occurs in these cases, it apparently resolves eventually.

COMMENT

Nickel carbonyl is considered to be highly poisonous. Although it is a clear straw-colored liquid which boils at 43° C, it decomposes by heating to 150° C. into nickel and carbon monoxide. The combination of carbon monoxide with nickel in the form of nickel carbonyl is relatively at least five times as toxic as straight carbon monoxide.

It is therefore imperative in industries using this product that steps be taken to prevent its inhalation by the workers.

E. G. B.

Use of the Treponema Pallidum Immobilization Test in a Syphilis Control Program

G. W. Miller and H. B. Smith (*American Journal of Syphilis, Gonorrhea and Venereal Diseases*, 37:424, September 1953) report the use of the *Treponema pallidum* immobilization test (TPI) as an aid in the diagnosis of

syphilis in the laboratories of the Department of Health of Ontario, Canada. Since the prevalence of syphilis has declined in Ontario in recent years, the percentage of "biologic false reactions" in the Kahn and Kolmer-Wassermann tests has increased. The serological specimens tested are sent in by physicians and clinics and represent prenatal, premarital and pre-employment, as well as routine examinations. Of 327 serum specimens that gave positive reactions with both the Kahn and the Kolmer-Wassermann tests, 27, or 8.3 per cent, were negative with the TPI test; of 355 sera in which the reactions with the two standard tests were inconclusive, the TPI test gave 185 positive reactions and 170 negative reactions; of 91 sera giving negative reactions with the two standard tests, 12, or 13.2 per cent were positive with the TPI test. As many of the sera showing inconclusive reactions were from prenatal examinations of pregnant women, the authors are of the opinion that unnecessary treatment of many pregnant women was avoided by the use of the TPI test. The TPI test has also proved "an exceedingly useful aid" in the problems arising in pre-employment and premarital examinations, as well as in tests for immigration visas and Red Cross blood donor tests. The test is, therefore, being continued by the Ontario Department of Health as of definite value in the diagnosis of syphilis.

COMMENT

The Treponema pallidum immobilization test is valuable in differentiating specific from nonspecific reactions, and in certain instances it is useful in the differentiation of syphilitic infection from other unrelated infection.

It is hoped that the time is not too far distant when the TPI test will be universally available to medical practitioners. As yet, it is not practical enough to be performed in most laboratories, as it requires special equipment and trained personnel.

E. G. B.

An Experience with Vaccination Against Influenza B in 1952 by Use of a Monovalent Vaccine

A. V. Hennessy and associates (*American Journal of Hygiene*, 58:165, Sept. 1953) report that an epidemic of influenza B occurred in the Wayne County Training School for high-grade mental defectives with an age range of seven to eighteen years; three months previous to the occurrence of the epidemic, 219 of these children had been given a polyvalent influenza virus vaccine, type A, 207 had been given an influenza virus vaccine of type B, and 212 a saline control vaccine. In the group given influenza A vaccine, the incidence of influenza B was 17.80 per cent, in the saline control group, 20.75 per cent, making the combined rate for these two groups, 19.32 per cent, while the incidence of the disease in the group given influenza B vaccine was only 7.24 per cent—a statistically significant difference. In all groups, the incidence of the influenza was higher in the younger children. The influenza virus isolated during this epidemic of influenza was found to be antigenically different from the strain used in the vaccine; yet the vaccine had a definitely protective effect, and the cases occurring in the B vaccinated group were apparently those who did not maintain an antibody content above the protective value; the fact that the disease occurred more frequently in the younger age group indicates that the antibody content of these children "declined more

rapidly" than in the case in older children or adults.

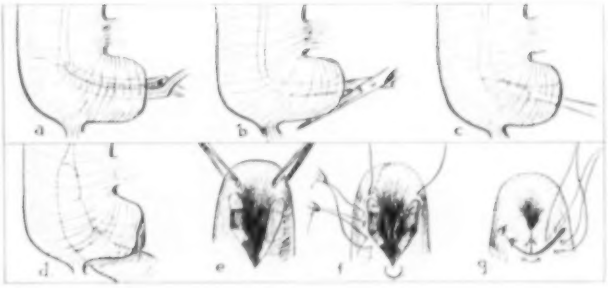
COMMENT

Unless the type of influenza virus responsible for an outbreak is known, the use of polyvalent vaccine is recommended. It is known that the various strains of influenza virus differ so much that immunization against one type does not insure immunization against another.

Polyvalent vaccine should also be used when mass immunization is attempted for groups of the population early in the fall as a safeguard against infection during the winter and spring. The vaccine produces an immunity in about one week which lasts for a period of six to eight months.

E. G. B.

Clini-Clipping



Posterior division of the cervix to overcome stenosis about the internal os. **a.** Dilating the cervix; **b.** Division of the posterior wall of the cervix with scissors; **c.** A knife is used to complete the division up past the internal os; **d.** Division completed permitting the finger to be passed up through the internal os; **e.** After division of the posterior wall of the cervix wedges of tissues are removed from the cut edges; **f.** Sutures in place for closing the wound; **g.** Sutures tied bringing the tissue into the angle of the incision to keep the internal os open.

Medical Book News

Edited by Robert W. Hillman, M.D.

Medical Emergencies

Emergency Treatment and Management. By Thos. Flint, Jr., M.D. Philadelphia, W. B. Saunders Co., [c. 1954]. 8vo. 303 pages. Cloth, $5.75.

This book should prove useful as a quick reference source where emergency treatment is involved. Practically all types of emergencies are covered as well as their medico-legal aspects. The chapter on poisons is particularly complete.

There are several useful tables and sample medico-legal forms. The book should prove of value in industrial medical clinics, hospital emergency rooms and to private practitioners who are called upon to give emergency medical care.

NATHAN MILLMAN

Experimental Medicine

Laboratory Instruments. Their Design and Application. By A. Elliott, D.Sc. & J. Home Dickson, M. Sc. New York, Chemical Publishing Co., [1953]. 8vo. 414 pages, illustrated. Cloth, $7.50.

This book is designed to guide the laboratory investigators who must design and construct their own instruments. Many good examples of the application of kinematic and optical principles are given and what is equally important, their limitations. There are chapters on the properties of materials of construction, vibration and temperature insulation, methods of measurements of small increments as well as an excellent chapter on the application of photography to research. This book should be extremely helpful to anyone who wishes help on instrument design and to acquaint him with some of the difficulties that must be overcome before good instrumentation ensues.

MORRIS L. RAKIETEN

Medical Economics

Financing Hospital Care in the United States. Vol. 1. Factors Affecting the Costs of Hospital Care. Edited by John H. Hayes. New York, Blakiston Company, [c. 1954]. 8vo. 300 pages, illustrated. Cloth, $4.00.

This book presents the report of the Commission on Financing of Hospital Care. This is one of three volumes being published by the Commission and contains the detailed study report on the factors which affect the cost of hospital care and the recommendations of the Commission.

We all know the problem of our increasing costs in hospitals today which is plaguing all concerned from the trustees of the hospital to the patients and their relatives who must foot the bill. This report attempts to identify the

problems related to the financing of hospital care; possibilities of economy in hospital operation and opportunities for easing the burdens on the individual in financing necessary hospital service. The Commission makes 19 recommendations which each hospital should study very carefully.

I. L. MAGELANER

Pediatrics

Textbook of Pediatrics. Edited by Waldo E. Nelson, M.D. 6th Edition. Philadelphia, W. B. Saunders Co., [c. 1954]. 4to, 1,581 pages, illustrated. Cloth, $15.00.

Another wonderful book dealing with the care, problems and management of the growth and development of infants and children has been presented to medical students and physicians. Each chapter has been developed in a clear and concise manner by a specialist in his own field. Very few problems dealing with the child, sick or well, have been omitted. This is a quick, valuable reference work on any problem in pediatric practice.

THURMAN B. GIVAN

Endocrinology

The Effect of ACTH and Cortisone Upon Infection and Resistance. Edited by Gregory Shwartzman, M.D. Symposium held at the New York Academy of Medicine, March 27 and 28, 1952. New York, Columbia University Press, [c. 1953]. 8vo, 204 pages, illustrated. Cloth, $5.50.

A reading of this interesting and highly informative text will most certainly acquaint one with the reasons why the use of these hormones in the face of specific bacterial and viral diseases is not only useless but may be highly dangerous. In addition to the chapters on specific microbial infections there are also good discussions relating to the effect of the hormones on lymphoid tissue and upon the repair processes. Since these play an important role in infection and resistance an elucidation of some of the factors influencing their reactions is very helpful.

MORRIS L. RAKIETEN

Endocrinology

Third Annual Report on Stress. By Hans Selye, M.D. & Alexander Horava, M.D. Montreal, Canada, Acta, Inc., [c. The Author, 1953]. 8vo, 637 pages, illustrated. Cloth, $10.00.

This volume consists largely of references to stress, particularly as it relates to the general and local adaptation syndromes. These references are highly comprehensive and are listed according to subject and in alphabetical form.

The volume is designed as a reference book rather than one which is to be read through completely. It may be used, in the authors' words, as follows:

1) If you are in great haste, consult this book only through the "Subject Index" for specific data, or look up the section "References" for individual papers.

2) If you have some time, first read "The General Physiology and Pathology of Stress" and then only peruse the special chapters concerning your field of interest. These can best be located through the "Table of Contents."

3) If the study of stress is your principal field of interest, first read all text sections and leaf through the whole book for up-to-date orientation. Then familiarize yourself thoroughly with "The Order of Precedence" since only

this will permit you to find specific data, on any subject, rapidly and without effort.

The authors review the previous objections to the general adaptation syndrome and state that research has brought forth more definite evidence to show that these objections are no longer tenable. They subsequently review the principal problems of stress research in 1953 in which they discuss the leading problems investigated during the year, as follows:

1) The mineralo-corticoid hormone, normally produced and secreted by the adrenals.

2) The role of "conditioning" and "permissive" actions during stress.

3) Indications and contraindications for antiphlogistic hormones in clinical medicine.

4) Is STH effective in man?

5) Regulation of ACTH secretion.

6) Possible existence of several ACTH's.

7) Is the adrenal cortex responsive to stimuli other than ACTH?

8) The Local Adaptation Syndrome (L-A-S).

9) The mechanism of antiphlogistic hormone actions.

10) Is the distinction between anti- and prophlogistic hormones justified?

11) Is the distinction between gluco- and mineralo-corticoid hormones justified?

12) Are the therapeutic actions of antiphlogistic hormones purely accidental, "pharmacologic" effects, or do they complement natural, defensive mechanisms?

13) Can endogenously secreted adaptive hormones produce disease?

14) Can oxogenous mineralo-corticoids produce (or aggravate) diseases of adaptation in man?

15) Are the tissue-lesions produced by STH or prophlogistic corticoids, in animals, true similes of naturally occurring diseases of man?

16) Are there morphologic and/or functional changes in the adrenals of patients with rheumatic, hypertensive and allied diseases?

17) Can the adaptation syndrome and the diseases of adaptation occur in the absence of the hypophysis and/or the adrenals?

18) The role of the nervous system in stress-reactions.

Part III of the volume is entitled Sketch for a Unified Theory of Medicine, which should be must reading for all physicians.

In addition to the regular volume, there are three special articles. First, The Effect of Bilateral, Total Adrenalectomy in Diabetics with Advanced Vascular Disease by James T. Wortham and James W. Headstream.

The second, Neurophysiological Aspects of the Control of ACTH Secretion by Robert W. Porter.

The third, Hypertension by D. M. Green.

The reviewer has been a strong advocate of Dr. Selye's theories for many years. He feels that each passing year adds more proof to the truth of these theories.

The book is highly recommended for reference to those engaged in any field of medical activity.

CHAS. S. BYRON

FOR SUPERIOR PERFORMANCE–

POLYCYCLINE *is a tetracycline produced by the unique Bristol process of direct fermentation from a new species of Streptomyces. Its basic structural formula (as compared with older analogues) gives significantly superior clinical performance.*

The most modern
Broad-Spectrum Antibiotic

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When you think of Tetracycline, think of
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POLYCYCLINE

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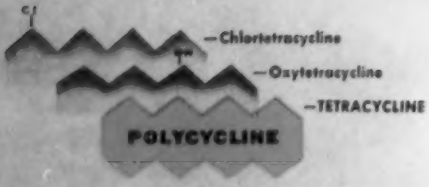
(TETRACYCLINE BRISTOL)



Polycycline is a tetracycline produced by the unique Bristol process of direct fermentation from a new species of Streptomyces isolated by Bristol Laboratories . . . rather than made by the chemical modification of older broad-spectrum antibiotics.

Like its older analogues, it is

EFFECTIVE IN BROAD RANGE

against gram-positive and gram-negative organisms, certain rickettsiae and large viruses.

Unlike its older analogues, it has a

BASIC STRUCTURAL FORMULA

no chlorine atom (present in chlortetracycline); and no hydroxyl group (present in oxytetracycline).

SUPERIOR CLINICAL PERFORMANCE

greater tolerance: markedly lower incidence and severity of adverse side effects.

greater solubility than chlortetracycline, yielding quicker absorption and wider diffusion in body fluids and tissues.

greater stability in solution than chlortetracycline or oxytetracycline, permitting higher, more sustained blood levels.

AVAILABLE AS

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SUSPENSION '250'

Ready to use without reconstitution, stable for 18 months without refrigeration.
Really palatable.
— in concentration of 250 mg. per 5 cc., in bottles of 30 cc.

POLYCYCLINE
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For accurate dosage in small amounts.
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Handy form for oral use, in two potencies:
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For deep intramuscular injection.
— in vials of 100 mg. per vial.

BOOKS RECEIVED FOR REVIEW

Surgical Technigrams. By F. M. Al Akl, M.D. New York, McGraw-Hill Book Co., [c. 1954]. 4to, 346 pages, illustrated. Cloth, $12.00.

Child Psychotherapy. By S. R. Slavson. New York, Columbia University Press, [c. 1952]. 8vo. 332 pages. Cloth, $4.50.

When Minds Go Wrong. The Truth About Our Mentally Ill and Their Care in Mental Hospitals. By John Maurice Grimes, M.D. Revised edition. New York, Devin-Adair Co., [c. 1954, The Author]. 8vo. 246 pages, illustrated. Cloth, $3.50.

Psychiatry and Common Sense. By C. S. Bluemel, M.D. New York, The Macmillan Co., [c. 1954]. 8vo. 259 pages. Cloth, $3.00.

WHAT'S YOUR VERDICT?

—Concluded from page 33a

The Supreme Court of New Jersey affirmed the conviction.

"If the defendant personally arranged with the abortionist for the performance of the illegal operation, he would admittedly be guilty. Likewise, one who directs a woman, under the circumstances here proven, to a third party for the purpose of having such an operation performed, aids and abets in the offense and may be found by the jury to have acted in concert with the chief offender and so be guilty as a principal.

One is an aider and abettor in the commission of a crime where he was an active partner in the intent which was the crime's basic element."

Based on an opinion of the Supreme Court of New Jersey

THE OVER-THE-COUNTER MARKET SUPPLIES THE MARKETING MACHINERY FOR...

ALL	Municipal bonds. R.R. Equipment trust certificates. Open end investment trusts securities. Secondary distributions. New issues sold to raise capital for expansion.
NEARLY ALL	U.S. Government securities. Corporate bonds. Real Estate Securities.
ALSO	Thousands of industrial and utility securities. Bank stocks in most cities. More than 750 insurance company stocks.

Investing For The Successful Physician

Prepared especially for Medical Times by Merrill Lynch, Pierce, Fenner & Beane, underwriters and distributors of investment securities and brokers in securities and commodities.

OVER-THE-COUNTER SECURITIES MARKET

At the Fulbright-Senate Banking Committee hearings in Washington, frequent mention was made of the over-the-counter market. The questioning would indicate that some of our legislators, as well as the general public, have a number of misconceptions concerning this important market for securities trading.

If you buy a share of General Motors or American Telephone, your order will be filled on the floor of the New York Stock Exchange. But if you tell your broker to buy a share of Time, Inc. or Guaranty Trust, your stock will be bought in the over-the-counter market.

In either case, the shares purchased represent proportionate ownership of a company. But there is a difference in the actual mechanics of the purchases.

The common stock of General Motors and American Telephone and about twelve hundred other corporations are listed on the New York Stock Exchange. Companies must pay for stock listing and also qualify according to the rules of the exchange. The American Stock Exchange and other regional stock exchanges also approve companies for listing. One advantage to corporate stock listing is the availability of a central location for all transactions in the corporation stock. This is conducted on the floor of the exchange where broker's representatives, called Floor Brokers (Exchange members), meet to buy or sell stock for their customers. The exchange market is actually a vast auction, with bids and offering prices being made audibly prior to all transactions.

Thus all orders to buy or sell General Motors or American Telephone, no matter where they originate, are eventually executed at one location the trading floor of the New York Stock Exchange.

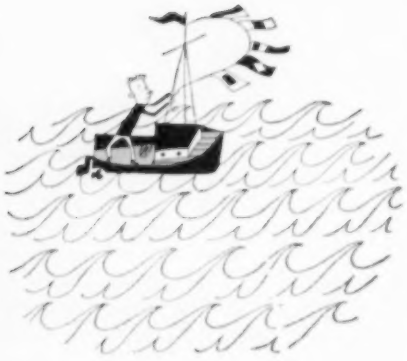
However, for one reason or another, more than 50,000 corporations are un-

able or prefer not to gain a listing on any exchange. The shares of these *unlisted* companies are traded in the over-the-counter market. And in this market, there is no central location where orders are executed.

Here's what happens: Your order, let's say for 100 shares of XYZ, is forwarded to the trading department of your brokerage firm. There the trader assigned to handle transactions in that stock checks to see what other dealers are dealing XYZ. He then contacts a few of them by phone—or teletype if they are in different cities. His object: To find the best price available.

The auction market and bargaining process is similar to that of the stock exchanges. It may take a little longer to complete your transaction over-the-counter since the traders (the equivalent of the floor brokers) are not in direct contact one with the other.

Actually the over-the-counter market has been in existence ever since the evolution of publicly-owned corporations in the U. S. In early Colonial days, there were no exchanges and people needed some sort of market place where they could buy and sell securities. Thus, something of a system came into being. Through dealers, investors were able to buy and sell their stock certificates in much the same manner as they did other merchandise.



The term "over-the-counter" dates back to those days when investors actually bought and sold their securities over a counter at any of a number of private banking houses. Later the country's stock exchanges were developed to handle many of the largest and most active security issues. But the over-the-counter market remains. And today it is bigger than ever.

The over-the-counter market supplies the market machinery for:

- Nearly all U.S. Gov't. securities.
- All the municipal bonds which finance schools, hospitals, highways, bridges, roads and the like.
- Fully 80% of all corporate bonds, both listed and unlisted.
- All railroad equipment trust certificates.
- Literally thousands of industrial and utility securities.
- Bank stocks in practically every city and town in the country.
- More than 750 insurance company stocks (less than a dozen are listed).
- All open-end investment trust and most real estate securities.
- All secondary distributions.
- All the new issues sold to raise millions of dollars of new capital needed for plant expansion and industrial development by our great corporations.

Net vs. Commission Transactions An unlisted stock may be bought or sold two ways—either on a *commission* basis, or *net*. When a stock is bought for you on a commission basis, your broker has acted as your agent.

On the other hand, you may buy your stock on a net basis, in which case your broker sells you the stock directly as a principal.

As a comparison, when you buy coffee at your grocery store, you always buy it at a net or retail price. Your grocer knows that people buy so much coffee each week so he keeps a supply on hand. He buys it at a wholesale price and when he sells it, he adds a mark-up to cover expenses and provide a profit. Much the same occurs when you buy an unlisted stock at a net price.

In the language of the stock business dealers "have a position" in the stocks they buy or sell net. They will buy or sell certain quantities of securities at any given time from customers or other dealers. They, of course, assume the risk of falling and rising prices hoping to make a profit. In so doing, they provide what is called a liquid market. In other words they have available a volume supply and volume demand.

Suppose, for instance, that a dealer buys a stock for which there is no immediate demand and before he sells it, the market price declines. The dealer will sell the stock to you at the current market price and take a loss. If, on the other hand, the price of the stock goes up during the period the dealer holds it, he will sell, again at the current market price, but at a profit. A very active stock, of course, will be more quickly traded and consequently the amount of profit or loss to the dealer will be less.

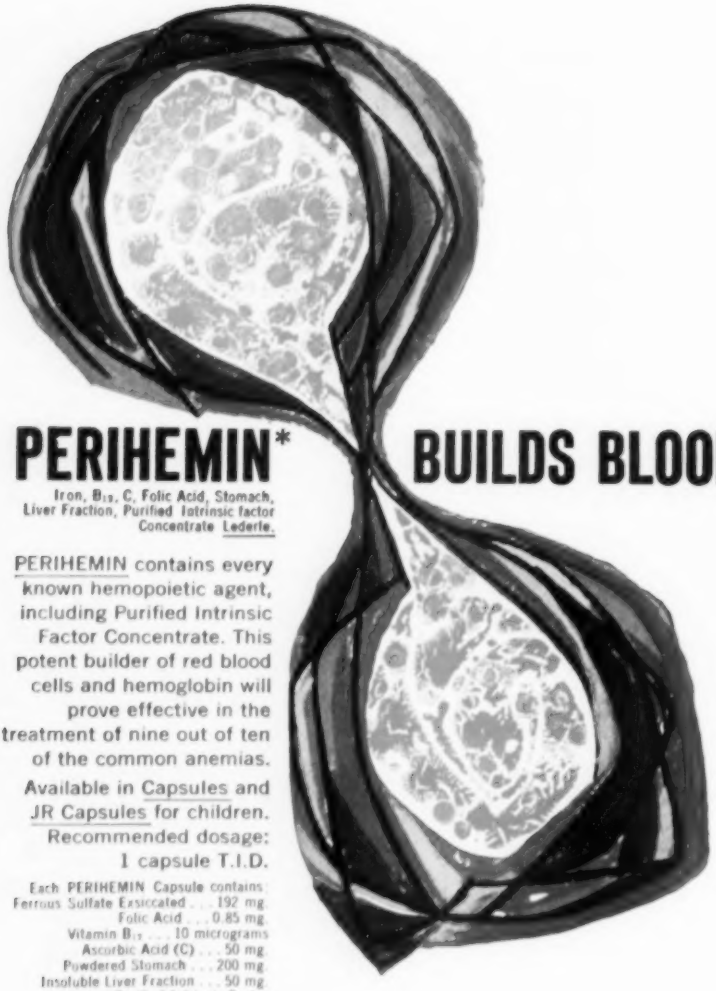
Unlisted Stock Quotations. Some people hesitate to buy unlisted stocks because prices are not quoted in their daily newspapers. Actually, in terms of an investment decision to buy a stock, this becomes a minor consideration. The important factor is the actual investment merit of the stock. It should be bought or rejected for that reason alone.

A good many newspaper financial sections carry quotations on the largest of the unlisted companies. Many also carry listings for over-the-counter stocks of smaller, local companies which a good number of the newspaper's readers may own.

The Wall Street Journal carries a daily list of about four hundred unlisted stocks, and in addition publishes an over-the-counter "Weekly List" each Monday, which contains about six hundred less-active stocks.

If you cannot readily locate a price quotation for a particular unlisted stock, your broker, bank, or investment adviser can give you a quote on very short notice.

Whatever your interest, be it investment for the long term or speculation on the growth of a younger company, the over-the-counter market offers you hundreds of selections. Remember, too, that although many consider listed stocks as being "graduates" of the over-the-counter market, it is a fact that a good many over-the-counter stocks graduate and still elect to remain in the over-the-counter market.



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PERIHEMIN contains every known hemopoietic agent, including Purified Intrinsic Factor Concentrate. This potent builder of red blood cells and hemoglobin will prove effective in the treatment of nine out of ten of the common anemias.

Available in Capsules and JR Capsules for children.

Recommended dosage: 1 capsule T.I.D.

Each PERIHEMIN Capsule contains:
Ferrous Sulfate Exsiccated . . . 192 mg.
Folic Acid . . . 0.85 mg.
Vitamin B_{12} . . . 10 micrograms
Ascorbic Acid (C) . . . 50 mg.
Powdered Stomach . . . 200 mg.
Insoluble Liver Fraction . . . 50 mg.
Purified Intrinsic Factor Concentrate . . . 0.5 mg.

JR Capsules are approximately one-quarter the potency of this formula.

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REG. U. S. PAT. OFF.

MODERN THERAPEUTICS

Changing Picture of Infection

Chemotherapy and antibiotic treatment have done much toward the conquest of infectious disease as a killing agent. Two present deterrents to their effectiveness are the fact that clinical application of the drug must await the onset of the disease, and the adaptive capacity for survival of many infectious agents. Resistant strains of bacteria as well as superimposed infectious presumably activated by alterations in bacterial ecology are a real problem and are magnified by the injudicious use of antibiotics for minor maladies.

The pathologist, Paul R. Cannon, in the *Bulletin of the New York Academy of Medicine* [*31*:87 (1955)], has presented a picture of the changing types of infection shown by necropsy material observed over a period of 25 years. He points out that these changes while influenced primarily by antibiotics and chemotherapy have been brought about also by advanced standards of education and facilities. Charts with explanatory annotations are given for lobar pneumonia, purulent meningitis, generalized peritonitis, perforative appen-

—Continued on following page

—Continued from page 89a

dicitis with generalized peritonitis, vegetative endocarditis and puerperal infection.

Cross-infection Controlled by Use of Hand Cream

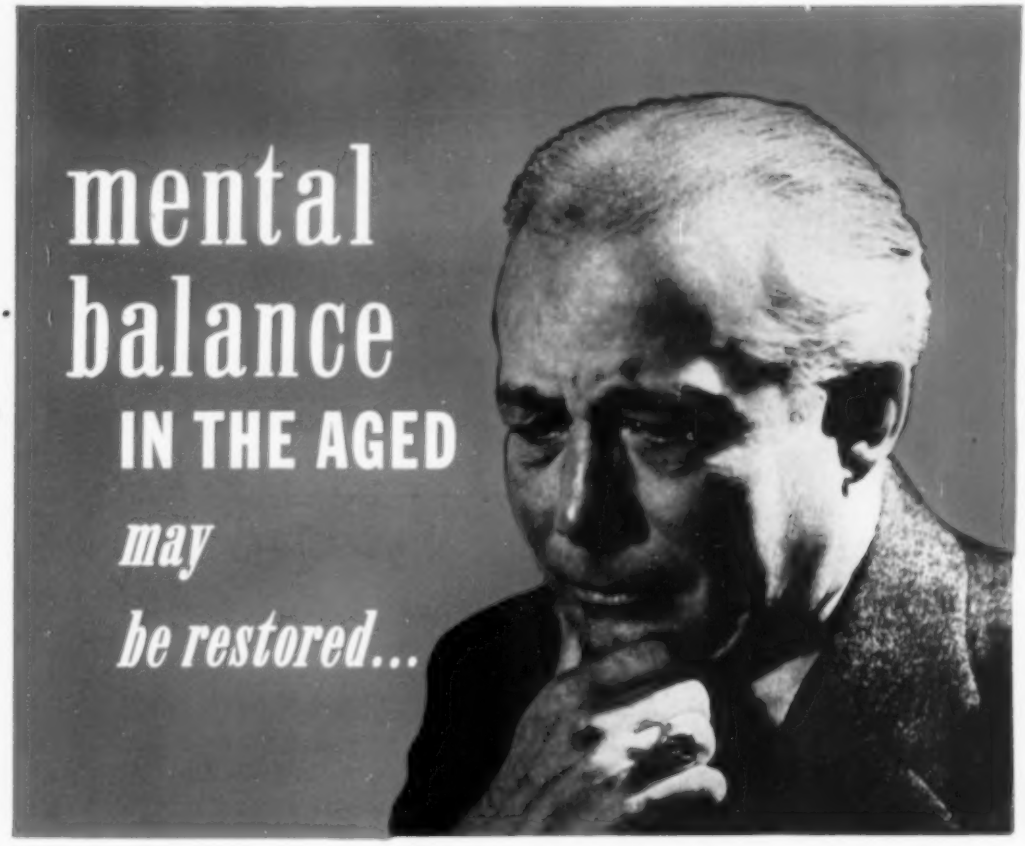
Efforts to control effectively bacterial cross-infection is a hospital problem of long standing; this is particularly true in maternity wards or hospitals. The organisms most frequently encountered are pyogenic staphylococci and streptococci. In attempting to identify all means by which the organisms reached the patients, the hands of the hospital personnel in attendance were believed to be a dominant factor. In the *British Medical Journal* [*1*:31 (1955)], Murray and Calman have reported the results obtained by a number of experiments in which various antiseptics were incorporated into a hand lotion. The use of the cream was capable of reducing greatly the bacterial count of the skin. During a trial period the hand cream was placed at all wash basins; its use rendered the hands resistant to bacterial contamination for considerable periods, and no groups of infection were discovered in the wards.

Treatment of Tuberculosis

Although the nature of the resistance of the human body to infection is poorly understood, it is this factor more than any other that influences the efficacy of treating methods. Especially in tuberculosis this fact, too, would seem to be closely allied to the beneficial value of bed rest. J. Burns Amberson, in the *Bulletin of the New York Academy of Medicine* [*31*:20 (1955)], while stating that tuberculosis continues to be a major world threat to human life, points out the gains made in the lowering of the mortality rate by modern methods of therapy.

Surgical measures for the control of pulmonary disease may be expected to show even higher percentages of effectiveness if combined with the use of chemotherapy. New drugs are constantly under investigation; those of known merit are streptomycin (and dihydrostreptomycin), isoniazid, para-aminosalicylic acid, pyrazinamide, and viomycin. The latter, while exerting active bacteriostasis in instances where the tubercle bacilli are otherwise drug resistant, is known to cause toxic effects which necessitate caution in its administration. Means for the combined use of these drugs are receiving intensive

—Continued on page 92a



NICOZOL relieves senile psychoses and cerebral arteriosclerosis, including mild loss of memory, mental confusion and deterioration, and abnormal behavior patterns.

Rehabilitation and release from public and private psychiatric institutions treating such disorders is possible.

NICOZOL has been proved* safe and simple, as well as practical and inexpensive, and may be used with confidence to treat ambulatory cases.

NICOZOL
for senile psychoses

*Reference: *Levy, S., Pharmacological Treatment of Aged Patients in State Mental Hospitals, J.A.M.A., 153:14, Pages 1260-1265, Dec. 5, 1953.*

Available in capsules and elixir – ask your pharmacist.

***Samples and literature* will gladly be sent upon request.**

DRUG SPECIALTIES, INC. WINSTON-SALEM 1, N. C.

—Continued from page 90a

study. For example, a dosage of only one gram daily, or one to two grams every two or three days of streptomycin will detract from the desired therapeutic effect, but toxicity and side reactions are avoided or minimized. However, the effect will be enhanced by the addition of 12 to 15 grams daily of para-aminosalicylic acid. Another advantage of combining drugs is the delay though not the prevention of bacterial drug resistance. Realizing that late exacerbations of the disease may occur, it seems advisable to combine the use of one of the most potent drugs (streptomycin and isoniazid) with one of lesser effectiveness and to withhold the employment of the other for possible future needs. In this disease, symptomatic control and regression of the lesions notwithstanding, vigilance must be exercised throughout the patient's life to detect the slightest evidence of recurrence.

Antimalarial Found Effective Against Petit Mal Attacks

The antimalarial drug Atabrine effectively combats petit mal attacks in epilepsy, it is reported in the *New England Journal of Medicine* [*251*:897 (1954)].

Drs. Douglas T. Davidson and Cesare Lombroso of the Harvard Medical School note that Atabrine was useful against petit mal seizures, either alone or in combination with convulsions. Most patients in the series had failed to respond to other methods of treatment. The antimalarial was administered in 0.1 gm. tablets, in dosages ranging from 0.1 to 0.4 gm. a day.

There is considerable agreement among clinicians today on the principles of treatment for epilepsy, the authors say. Most concede that the drug to be used, and the dose, must be individualized due to each patient's variation in tolerance and need for medication. Effects of full doses of the least toxic drug should be tested first and the drug withdrawn if therapy proves unsuccessful. When one drug used singly

—Continued on page 94a

Tonsillectomy

I had a tonsil in my house
That acted rather foolish,
Consorting with bacteria
That were extremely mulish.

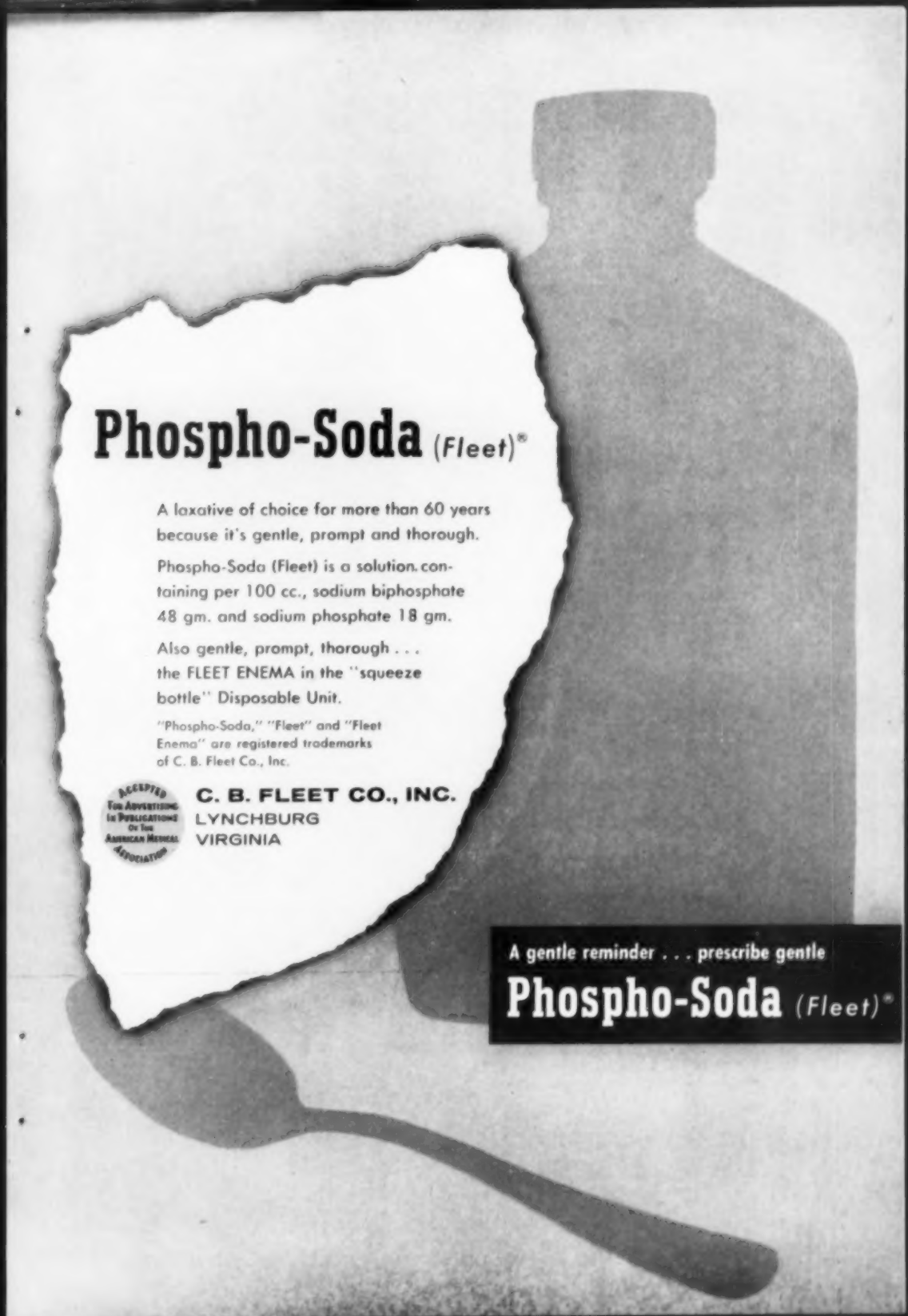
Once they moved in and settled down,
On cushioned tissue resting,
They promptly set up nurseries;
Soon baby streps were nesting.

Poor tonsil, swollen and inflamed,
Was incapacitated,
And what it did to me, the host,
Cannot be lightly stated.

"Say 'Ah,'" the doctor said. I oped
the toothy cavern wide.
Before I knew what was about
The tonsile was outside.

And now I sip my liquid food,
Each gulp a painful seizure.
A tonsil's end is sure and swift.
The host repents at leisure.

LUCILE GREBENC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A laxative of choice for more than 60 years because it's gentle, prompt and thorough.
Phospho-Soda (Fleet) is a solution containing per 100 cc., sodium biphosphate 48 gm. and sodium phosphate 18 gm.
Also gentle, prompt, thorough . . . the FLEET ENEMA in the "squeeze bottle" Disposable Unit.
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LYNCHBURG
VIRGINIA
A gentle reminder . . . prescribe gentle
Phospho-Soda (Fleet)®

—Continued from page 92a

fails, seizure control is often achieved by a combination of drugs in full dosage, the Boston doctors say.

They caution against sudden withdrawal of effective medication as likely to trigger a series of seizures.

Early Sulfa Therapy Held Lifesaving in Meningitis

Doctors often blame meningitis deaths on inadequate treatment with penicillin or sulfonamides before admission to the hospital. In order to test this assumption, Dr. John Beveridge kept score on the previous treatment of 93 meningitis patients seen at the Royal Alexandra Hospital for Children in Sydney, Australia. His results are presented in the course of a longer report on that hospital's experience with 110 cases of purulent meningitis in infancy and childhood in *The Medical Journal of Australia* [*1*:932 (1954)].

All patients at the hospital were routinely given adequate doses of sulfadiazine on diagnosis at the hospital in addition to other therapy. Those who had received previous treatment with sulfa or antibiotic drugs of any kind did better than those who received none at all, Dr. Beveridge reports. Of 14 pneumococcal meningitis patients who received treatment before admission, nine came through with good results and two died, while of 14 others suffering from the same type of meningitis who received no treatment before hospitalization, only three came through with good results and nine died. "It is obvious that those patients given even suboptimal treatment with sulfonamides or penicillin or both do better than patients not so treated," he comments.

In discussing the high mortality for all types of meningitis, Dr. Beveridge parenthetically states his own philosophy of dosage with chemotherapeutic agents. "I would say a word in support of the practitioner who examines a patient, particularly a baby, realizes that he is far from well, and prescribes penicillin of sulfadiazine, or both. My own feeling is that this practice, though unscientific, is often life-saving, if that patient is developing purulent meningitis of any type." However, once meningitis is suspected, Dr. Beveridge insists upon prompt lumbar puncture and full treatment.

Treatment of Rheumatoid Arthritis

A series of patients with rheumatoid arthritis were treated for a year or more

—Continued on page 96a

—Continued from page 94a

with an orally administered combination of cortisone acetate and the sodium or potassium salt of para-aminobenzoic acid. The patients were given routine doses of cortisone acetate for one or two weeks, then the dosage was reduced. On the decreased dosage, there was a prompt relapse within a matter of days. Following this occurrence, a solution of sodium or potassium para-aminobenzoate in water was given one hour prior to each dose of cortisone acetate. At intervals, one or the other drug was withdrawn and the effect noted by Wiesel and Barritt who conducted the investigation [*American Journal of the Medical Sciences*, 227:74 (1954)]. Patients were examined at two-week intervals and the manifestations of rheumatoid activity and the evidence of side reactions observed. With one exception, the patients showed improvement comparable to that obtained with much larger doses of cortisone acetate given alone.

New Spinal Anesthetic Called Safe and Very Rapid-Acting

Sympocaine, a new anesthetic under clinical study by Winthrop-Stearns Inc., has been found to be one and one-half times more potent than Pontocaine (tetracaine) very rapid in action and relatively non-toxic when administered spinally, according to a research team headed by Dr. Max S. Sadove.

The investigators, writing in *Anesthesia and Analgesia* [33:366 (1954)], say that the drug's duration of anesthesia is midway between procaine and Pontocaine. Based on tests with 382 patients at the Veterans' Administration Hospital in Hines, Ill., further clinical trial with Sympocaine in spinal anesthesia is justified, they state. The group will also publish in the future its evaluation of the drug's effectiveness in nerve block anesthesia. "No reactions to the local anesthetic were encountered" in a number of regional nerve blocks already performed, the authors say.

Spinally, the average duration of analgesia with Sympocaine was found to be approximately two and one-half hours when an 0.5 per cent hyperbaric solution without epinephrine was used. The duration was prolonged to three hours when epinephrine was employed, with no increase in the incidence of side reactions. In isolated cases, "six hours or longer" of analgesia were observed.

Animal and clinical tests indicate Sympocaine to be as fast-acting as any present anesthetic. In the Sadove study, average onset time ranged from 1.1

—Continued on page 100a

Diagnosis, Please!

ANSWER

(from page 25a)

Emphysema with blebs.

Lungs show hyperaeration with multiple thin-walled blebs crowding the remaining lung.

Dear Doctor:

You, like most physicians, are constantly on the lookout for the best product for the purpose intended. This, too, is our objective.

Now we believe we have come very close to hitting the target with the discovery of a new non-barbiturate sedative-hypnotic called Noludar. This new compound, a piperidine derivative, usually brings sleep in half an hour, and its action lasts an average of six to seven hours. Clinical studies in over three thousand patients suggest little, if any, likelihood of hangover or other aftereffects.

You will be interested to know that, in smaller doses, Noludar is an effective sedative for daytime tension. This is important because some physicians feel that a good daytime sedative will frequently eliminate the need for a hypnotic.

Many pharmacies can already fill your prescriptions for Noludar. Others will soon be receiving their introductory stock.

If you would like to try Noludar before prescribing it, just return this letter with your request.

Sincerely,

R. A. Hardt
Vice President

RAH/nt

P.S. This letter, announcing Noludar, was mailed to most practicing physicians. In case you overlooked it, you may be interested in this copy.

Hoffmann - La Roche Inc.
Roche Park, Nutley 10, N.J.

Establishing desired eating patterns

Obedrin®

and the 60-10-70 Basic Diet

With Obedrin and the 60-10-70 Basic Diet, the overweight patient receives specific, proved aids to control overeating. Loss of weight is accomplished more comfortably, while the patient develops new and better eating habits.*

OBEDRIN CONTAINS:

Methamphetamine for its anorexigenic and mood-lifting effects.

Pentobarbital as a corrective for any excitation that might occur.

Vitamins B_1 and B_2 plus niacin for diet supplementation.

Ascorbic acid to aid in the mobilization of tissue fluids.

Obedrin contains no artificial bulk, so the hazards of impaction are avoided. The 60-10-70 Basic Diet provides for a balanced food intake, with sufficient protein and roughage.

*Eisfelder, H. W.: Am. Pract. & Dig. Treat., 5:778 (Oct. 1954).

FORMULA:

Semoxydrine HCl (Methamphetamine HCl) 5 mg.; Pentobarbital 20 mg.; Ascorbic acid 100 mg.; Thiamine HCl 0.5 mg.; Riboflavin 1 mg.; Niacin 5 mg.

Write for 60-10-70 Diet Pads, Weight Charts, and samples of Obedrin.

The S. E. MASSENGILL COMPANY

Bristol, Tennessee

NOW PIPERIDOL ACTION

for peptic ulcer pain · spasm

cholinolytic

PIPTAL

RELIEF DAY AND NIGHT

without urinary retention or constipation

NORMALIZES GASTRIC MOTILITY AND SECRETION

Closely related to the visceral eutonic DACTIL®, PIPTAL curbs gastric hypermotility and duodenal spasm without significantly altering normal tonus or motility. A postganglionic parasympathetic inhibitor, cholinolytic PIPTAL normalizes gastric secretion, favors ulcer healing without undue interference with digestion.

WITHOUT URINARY RETENTION OR CONSTIPATION

Unlike compounds of other derivation, the effect of PIPTAL, latest LAKESIDE piperidol, is negligible on bladder and distal colon. Mydriasis, dryness of the mouth and tachycardia occur infrequently and are usually mild and transient. Side effects necessitating withdrawal of PIPTAL have not been observed.

cholinolytic

PIPTAL

Use the Patient Report Form accompanying mailed samples and see it work in your practice.

For relief day and night: One tablet T.I.D. and one or two H. S. Each tablet contains 5 mg. of PIPTAL, the *only* brand of *N*-ethyl-3-piperidyl -benzilate methobromide.

Lakeside Laboratories Inc. PIONEERS IN PIPERIDOLS Milwaukee 1, Wisconsin

MODERN THERAPEUTICS

—Continued from page 76a

minutes to 2.0 minutes.

Referring to side effects, the group found hypotension to be the most common and "more frequent in the high than in the low spinals.

"The occurrence of hypotension is more a sign of height of spinal anesthetic level than a true side reaction," they report, adding it "was always transitory and responded to oxygen and small doses of vasopressors. There were no cases of prolonged or irreversible hypotension.

Assisting Dr. Sadove were Drs. Myron J. Levin and Raymond F. Rose, also associated with the Hines V. A. Hospital and the University of Illinois College of Medicine.

Sulfadiazine Protects After Major Operation

Sulfadiazine is the best prophylactic against the threat of urinary tract infection following abdominal operations when antibiotics are not required for a specific reason, Dr. J. Englebert Dunphy, Clinical Professor of Surgery at Harvard Medical School reports in *The Practitioner* [*173*:431 (1954)].

"Certain operative procedures in the abdomen predispose to urinary-tract infection," Dr. Dunphy warns in discussing prophylactic uses of antimicrobial agents in abdominal surgery. "Initially, if a combination of streptomycin and penicillin is used," (to provide intestinal antisepsis), "this will suffice to protect the urinary tract. Later, when these antibiotics may not be necessary for other reasons, one of the sulphonamides may be continued in small doses orally. This will produce a definite bacteriostatic effect. Sulfadiazine remains the most effective agent for this purpose."

Vitamin C in Children's Surgery

Vitamin C is important in the preoperative and postoperative care of infants and children. In all abdominal operations performed on infants, writes Dr. Loren R. Chandler, professor of surgery at the Stanford University School of Medicine, San Francisco, in *Surg. Clin. North America* [*34*:1463 (1954)], the last feeding (six hours before operation) should consist only of sweetened orange juice or a dilute formula containing sugar. All depleted patients should be given vitamin C daily before and for several days after surgery, Dr. Chandler states.

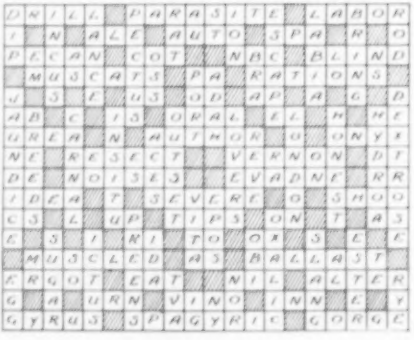
The Use of Anticholinergic Drugs in Cases of Peptic Ulcer

A group of 555 patients known to have chronic peptic ulcer were studied for varying periods, the average being

—Continued on page 102a

MEDICAL TEASERS

Solution to puzzle on page 43a



In every walk of Life

Life becomes more livable for the Anginal Patient

Pentoxylon combines the bradycrotic, tranquilizing, stress-relieving effects of Rauwiloid®, 1 mg., with the prolonged coronary vasodilating influence of pentaerythritol tetranitrate (PETN), 10 mg.

Reduced heart rate—due to Rauwiloid—lengthens diastole and leads to better coronary filling and lessened cardiac work.

This new approach reduces nitroglycerin need, in many instances obviates it; increases exercise tolerance, reduces anxiety, allays apprehension, and produces objective, ECG-demonstrable improvement.

Equally indicated in normotensive and hypertensive patients, since Rauwiloid tends to lower elevated blood pressure but does not affect normal tension. Clinical test samples on request.

LASTING CORONARY DILATATION

LOWER PULSE RATE

BETTER CORONARY CIRCULATION

LESSENED CARDIAC WORK

IMPROVED PSYCHIC STATUS

Dosage: one to two tablets q.i.d. In bottles of 100 tablets.

PENTOXYLON®

Each tablet contains pentaerythritol tetranitrate (PETN) 10 mg. and Rauwiloid® 1 mg.

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.

—Continued from page 100a

ten months. Two groups of medication were used: in the first, identical appearing tablets contained 50 mg. of Banthine or 0.2 mg. of Atropine. The average daily dose of Banthine was 400 mg., of Atropine, 1.6 mg. daily. The second group used tablets containing 25 mg. of Pathilon and a placebo identical in appearance. In 75 per cent of the patients studied, results from the use of the anticholinergic drugs (Banthine and Pathilon) were rated good to excellent. In this group, complications occurred but, on the whole, the patients fared significantly better than those having received Atropine or placebos.

According to one of the investigators, David Cayer, writing in the *Journal of the Bowman Gray School of Medicine* [*12*:83 (1954)], the anticholinergic drugs, especially when administered parenterally, give prompt relief of pain. However, their most marked effect is on motility when duodenal spasm excessive peristalsis or disturbances in gastric evacuation are present. In these patients relief of pain coincides with cessation of motility. It is believed that these drugs should be used as adjuncts to conventional therapy—never as substitutes.

Treating Methods for Acne

Acne is one of the most common conditions the physician is called upon to treat. Writing in *Postgraduate Medicine*

—Continued on page 106a

Upjohn

Ulcer protection that lasts all night:

Pamine*-Phenobarbital Elixir

BROMIDE

Each 5 cc. (approx. 1 tsp.) contains:

Phenobarbital	8.0 mg. (⅛ gr.)
Methscopolamine bromide	1.25 mg.
Alcohol	20%

Dosage:

1 to 2 teaspoonfuls three or four times daily, depending upon requirements in the individual patient.

Supplied: Pint bottles.

*REGISTERED TRADEMARK FOR THE UPJOHN BRAND OF METHSCOPOLAMINE

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LACTOFORT

The answer to the "chronic appetite problem" in pediatric patients.

LACTOFORT

Greatly improves utilization of milk protein in infants and children.

LACTOFORT

Produces prompt stimulation of appetite and good rate of growth and development.

LACTOFORT

Unsurpassed for the nutritional management of pediatric patients with anorexia or limited digestive capacity and consequent suboptimal nutrition.

LACTOFORT

The first and only truly complete pediatric dietary *supplement.*

LACTOFORT

Provides lysine—a critically essential amino acid—as well as multiple vitamins, calcium and iron, combined in one convenient dosage form.

LACTOFORT

A tasteless, odorless, readily soluble powder that is simply added to milk formulas or unmodified milk.

LACTOFORT

Administered in *small* daily dosage—one or two Lactofort measuring spoonfuls daily, depending on the weight of the infant.

Supplied: In 46 Gm. bottles with a special Lactofort measuring spoon enclosed.

WHITE LABORATORIES, INC., KENILWORTH, N. J.

—Continued from page 102a

[*17*:205 (1955)], the author, James Philpott, describes its clinical types, the disturbed function causing the plugging of the follicular orifices, and shows how both course and severity may be influenced by several factors, among them being hormonal imbalance, diet, metabolic disturbances, climatic conditions, emotional stress, aggravating medications and focal infection. Treatment may be routine in many respects, but must be individualized according to type of acne and specific reactions of the patient.

Diet. The question of diet varies greatly between individuals. In general, fat-containing foods are restricted. All condiments and seasonings are kept to a minimum. Milk in amounts over three glasses daily should be low in butterfat content.

Local or topical therapy. For the most part, the object of local therapy is the production of a desquamating or peeling effect in order to reduce the degree of hyperkeratotic plugging of the follicular orifices and to promote proper drainage of the sebaceous glands to the skin surface. Various types of sulfur derivatives or sulfides are efficacious, and N.F. lotio alba is widely used. Some lotions utilize alcohol as a menstruum for salicylic acid and resorcinol. In cases involving severe cystic reaction and pustulation, hot applications of Vleminckx's solution are beneficial when used for a week or ten days.

Vitamins. Patients in whom papular elements predominate together with numerous comedones are benefited by vitamin A, the average quantity being

—Continued on page 110a

known and accepted from Acapulco to Addis Ababa

ENTERO-VIOFORM®

potent anti-diarrhea agent now available in the U.S.A.

Entero-Vioform, a powerful agent for use in simple infectious diarrhea and amebic dysentery, is now available for the first time in the United States. This well-tolerated, virtually nontoxic anti-diarrhea agent is especially useful for travelers, who are particularly vulnerable to diarrhea.

Entero-Vioform is available in tablets (also known as Vioform® tablets), each containing 250 mg. iodochlorhydroxyquin U.S.P.

VIOFORM® (iodochlorhydroxyquin U.S.P. CIBA)

CIBA
SUMMIT, N. J.

THE ORAL USE OF PECTIN N.F. AND PECTIN DERIVATIVES IN PHARMACEUTICAL SPECIALTIES

Pectin enhances the physiologic function of the digestive tract through its colloidal, chemical and antibacterial properties. The beneficial action is derived by increasing the bulk and fluid retention of the upper intestinal contents, giving them a smooth gelatinous consistency, and by lubricating the intestinal wall. Pectin promotes normal peristalsis without harsh, irritating mechanical influence.

Current investigational work indicates that the detoxication mechanism of pectin and its derivative, galacturonic acid, is also of value in reducing many toxic reactions caused by other therapeutic agents.

Exchange Brand Pectins and Derivatives are available to the medical profession in specialty products distributed by leading pharmaceutical companies.

Pectin N. F. #444
Pectin-Cellulose Complex #440
Polygalacturonic Acid #491
Galacturonic Acid #494
Calcium Pectinic Acid Amide #468
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is it a treatable anemia?

prescribe ROETINIC*

ONE CAPSULE DAILY

Each ROETINIC capsule
(one daily dose) contains:

Intrinsic Factor-Vitamin B_{12} Concentrate	1 U.S.P. Oral Unit
Folic Acid	2 mg.
Ferrous Sulfate, Exsiccated	400 mg.
Ascorbic Acid	100 mg.
Molybdenum	1.5 mg.
Cobalt	0.5 mg.
Copper	0.5 mg.
Manganese	0.5 mg.
Zinc	0.5 mg.

Bottles of 30 and 100
Prescription only

Only one-a-day hematinic which conforms to exact U. S. P. requirements for Intrinsic Factor-B_{12}, as defined by the Anti-Anemia Preparations Advisory Board.

Only one-a-day hematinic which contains therapeutic amounts of all known hemapoietic factors, including the "four extra essentials."

**Trademark*

Rx POERIC CHICAGO 11, ILLINOIS

—Continued from page 106a

from 75,000 to 100,000 units daily given for periods of two to three months with a one-month rest period between courses. When the acne has a marked seborrheic complex, vitamin B complex is particularly helpful.

Hormonal therapy. Estrogenic supplemental treatment has proved of value, but is not advised for persons under 19 years of age. For young women, estrogenic substances such as Premarin, stilbestrol or sulestrex are given for about 21 days, then discontinued, and started again following cessation of the patient's next menstrual period. Daily dosages are: Premarin, 0.625 mg., stilbestrol, 0.25 to 0.50 mg., and sulestrex, 1.25 mg. Males are given daily doses of 0.5 mg. of stilbestrol or 0.625 mg. of Premarin for 30 to 60 days.

Antibiotics and toxoids. In the case of large pustular elements, or deep cystic acne with multiple areas of dissecting subcutaneous draining abscesses, antibiotics therapy for a month or six weeks is helpful. The agents used are bicillin, terramycin or aureomycin. In some instances, vaccine therapy is effective.

Physical therapy. Irradiation therapy, given in fractional amounts weekly, is beneficial and safe, although this form of treatment is less widely used than formerly. Under this heading, cryotherapy, and ultraviolet light should

—Continued on page 112a

"remarkable absence" of rebound swelling†
safe even for hypertensive patients
"...equally well tolerated in adults and children"†

with new convenience

CORTICLORON Nasal Spray, 15 cc., in plastic bottle provides superior coverage with evenly atomized mist.

Also available for ophthalmic use—CORTICLORON *Sterile* Suspension, 15 cc. dropper bottle.

CORTICLORON S contains chlorprophenpyridamine gluconate and cortisone acetate.

†Seidmon, E. E. P., and Schaffer, N.: Ann. Allergy *12*:85, 1954.

MODERN THERAPEUTICS

—Continued from page 102a

be mentioned.

Surgical measures. Much of the scarring from acne is inflicted upon the individual by himself. A small incision in the dome of a deep cyst by the physician, or cauterization of the cystic wall causes little or no scarring.

Hypertension Treated with Hexamethonium Bromide

A group of 26 patients with malignant or benign hypertension were treated with a long-acting preparation of hexamethonium bromide (H.M.B.), using a 20 per cent solution of the drug in polyvidone with added ephedrine. Treatment lasted from seven to 20 preparation and the relative freedom from side effects in the first hour or two after injection. Patients were able to months; for the first three to five weeks' treatment, the patients were hospitalized. Dosage began with a test injection of 20 mg., while the average adjusted dosage was 200 mg. at eight-hour intervals. Patients were shown how to give themselves injections, and reported back after intervals increasing up to six weeks. Of the patients in whom treatment was continued for more than three months, eight of ten with benign hypertension and four of seven with malignant hypertension returned to full-time work.

Goldsmith and his associates who reported the results of their study in the *Lancet* [*268*:371 (1955)] mention the greater duration of action of the retard

lead an uninterrupted working life after treatment had been established. The authors find this form of therapy practicable for the long-term management of certain patients with severe hypertension accompanied by organic symptoms.

Rheumatic Heart Disease in Premenstrual Period

Can menstruation influence the degree of failure in women with rheumatic heart disease?

This question is considered in the readers' Forum of the *Diuretic Review*, distributed by Lakeside Laboratories, Inc.

The reply of "yes" goes on to cite recent clinical confirmation that some female cardiac patients suffer more than usual during the pre-menstrual period. The retention of salt and water that generally occurs premenstrually aggravates similar conditions of the illness.

Such electrolyte changes, probably resulting from cyclic hormonal changes, are responsible for the syndrome of premenstrual tension that is marked by weight gain and edema, *Diuretic Review* states. Many women have no overt symptoms because electrolyte imbalance may not be as marked.

The Forum refers to a paper by Kowalski and Callahn (*Clinical Research proceedings* [1:78 (1953)]. They found that seven of fourteen patients with failure due to rheumatic heart disease "developed increased cardiac disability premenstrually as manifested by increased dyspnea on exertion or at

—Continued on page 164

selective cough control

with NEW, NON-NARCOTIC, NON-OPIATE

Dosage: children 2 to 4 years —½ teaspoonful; children 4 to 12 years —1 teaspoonful; older children and adults —2 to 4 teaspoonfuls (½ to 1 tablespoonful) or 1 tablet — 3 to 4 times daily

Available as

Toclase Syrup
Bottles of one pint

Toclase Expectorant Compound
Bottles of one pint

Toclase Tablets
25 mg.
Bottles of 25

TOCLASE*

BRAND OF CARBETAPENTANE CITRATE

selective

A new synthetic chemical compound "possessing remarkable cough-relieving properties."[1] Toclase is a highly selective inhibitor of the hyperactive cough reflex, apparently by way of the medullary cough center.

effective

Its specificity of action recommends Toclase for the prompt control of irritating, exhausting cough. Because Toclase does not contain codeine or other opium derivatives, the patient is free from constipation, depression, and other undesirable side effects inherent in the use of the opiates.

and highly palatable

The delicious cherry flavor of Toclase Syrup and Toclase Expectorant Compound appeals to children and adults alike.

[illegible]

Pfizer

PFIZER LABORATORIES, Brooklyn 6, N.Y.
Division, Chas. Pfizer & Co., Inc.

—Continued from page 113a

rest, nocturnal dyspnea, increased fatigability, choking sensations and/or palpitation." Typical signs of decompensation such as rales, edema and R U Q tenderness were also present.

Angina Pectoris Treated with Pentoxylon

While the effectiveness of nitroglycerine for the control of angina pectoris is unquestioned, disadvantages in connection with its use have led investigators to seek an adequate substitute. Pentaerythritol tetranitrate (PETN) has proved most satisfactory of the agents tested. In addition, an Indian drug, Rauwolfia serpentina, recognized as an excellent hypotensive agent and capable of easing emotional tension, has been used in the form of an alkaloidal extract known as the alseroxylon fraction. Assuming that a combination of these drugs would be valuable in angina, it has been made available as Pentoxylon.

In a study conducted by Eldon W. Snow [*Northwest Medicine*, 54:34 1955)], Pentoxylon was administered to a group of 25 patients known to have angina pectoris. Results were most gratifying: Nitroglycerine requirements were reduced in all patients, and abolished in many instances; reduction in incidence and in severity of attacks was reported by all patients; exercise tolerance was improved; bradycardic action was apparent; hypertension was reduced, and relief of apprehension was evident in all patients. Side effects were minimal. While Pentoxylon is not

—Concluded on page 115a

new more comprehensive • more effective

RAUWOLFIA COMBINATION THERAPY of hypertension

and hypertensive symptoms

RAU-PERTENAL®

for faster, surer, safer control in the office patient than with any single drug

Each capsule-shaped, green **RAU-PERTENAL** tablet contains:

Rauwolfia Serpentina, standardized whole root	50 mg.
Veratrum Viride Ext., eq. to whole drug	75 mg.
Mannitol Hexanitrate	30 mg.
Homatropine Methylbromide	2.5 mg.

DOSE: 1 tablet 3 or 4 times a day, preferably after meals.

SUPPLY: Bottles of 50, 100 and 500 tablets.

A NEW HIGH IN SAFETY RAU-PERTENAL therapy is virtually worry-free; it will not produce any serious side-effect. Even veratrum nausea is reduced to a minimum because of minimum dosage.

A NEW COMPREHENSIVE EFFICACY Pressure is rapidly established and maintained at safer levels . . . distressing symptoms are promptly relieved . . . general tension is relaxed.

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A NEW SENSE OF WELL-BEING is induced by RAU-PERTENAL. It has a marked mood-brightening effect – restores to patients a sense of well-being, comfort and normality.

Why not write for **samples** *of new* RAU-PERTENAL *and literature now*

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Crookes

—Concluded from page 116a

considered to be a total substitute for nitroglycerine, the response to its administration indicates the desirability of further study.

Isuprel Recommended in Cardiac Arrhythmia

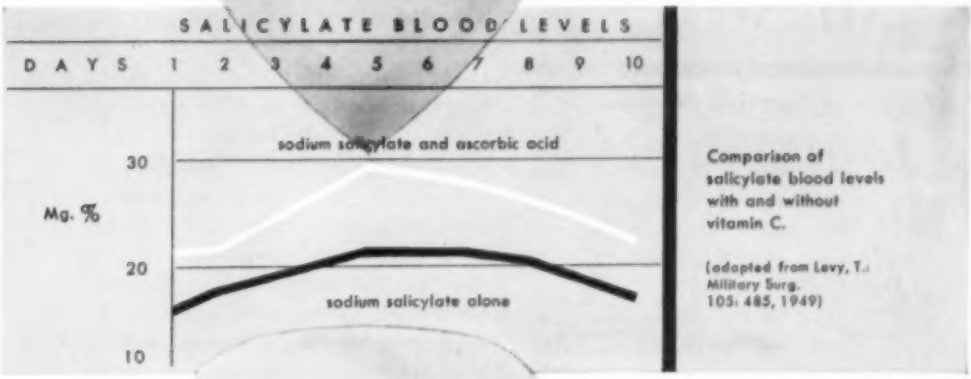
Clinical experience in treating several types of cardiac arrhythmia with Isuprel, a sympathomimetic drug produced by Winthrop-Stearns Inc., has yielded such satisfactory results as to warrant regarding this agent as the present "drug of choice in these conditions," according to an article, *American Heart Journal* [*48*:993 (1954)].

In a study of 28 patients at the Henry Ford Hospital, Drs. E. E. Schumacher and C. L. Schmock report achieving "good results for periods of three to four months" with sublingual Isuprel in some cardiac disorders. These patients, the authors note, had the Morgagni-Stokes-Adams syndrome in connection with ventricular tachycardia, or hyperactive carated sinus syndromes.

Certain "consistent results" were observed in the entire series. There was generally a rise of 10 to 20 mm. Hg. in systolic blood pressure and a similar drop in diastolic pressure. In cases of complete heart block the "rate of the pacemaker always increased considerably and, except in one case, relocated near the auriculoventricular node." Isuprel exerted its primary effect upon the sinus area in cases of incomplete heart block, the doctors state.

"In no case was ventricular fibrillation or ventricular tachycardia induced by Isuprel."

TRULY HIGHER salicylate blood levels..



Comparison of salicylate blood levels with and without vitamin C.

(adapted from Levy, T.: Military Surg. 105: 485, 1949)

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Armyl produces higher and more effective salicylate blood levels than is possible with salicylates alone

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Sodium Para-aminobenzoate (5 gr.).....0.3 Gm.
Ascorbic Acid (50 mg.).....0.05 Gm.
Bottles of 100 capsule-shaped tablets.
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NEWS AND NOTES

Course in Parasitic Diseases

A short intensive course on the laboratory diagnosis and pathology of parasitic infections will be presented August 15-27, 1955, at the Louisiana State University School of Medicine, New Orleans.

The course is designed primarily for pathologists and technologists. However, general practitioners, internists, pediatricians, gastroenterologists and physicians engaged in the practice of public health and tropical medicine who are interested in the laboratory diagnosis of parasitic infections are welcome to attend. The instruction and training will be of assistance to pathologists who are preparing for board examinations, to pathologists and physicians who are responsible for the diagnosis of parasitic infections in their laboratories and to technologists engaged in this specialty.

The course will include lectures, extensive demonstrations, films and supervised individual laboratory study. Emphasis will be placed upon the practical aspects of laboratory diagnosis of common parasitic infections, including training in stool examination and stool concentration technics. Abundant material from patients with parasitic diseases endemic in this area will be available for examination. Comprehensive slide sets containing parasitic organisms in tissue sections will be studied. Library facilities are available. The medical school building is air conditioned.

Registrants should bring their microscopes, equipped with mechanical

—Continued on page 122a

—Continued from page 120

stages, and their microscope lamps. A limited number of places will be available. The fee for the course is $50.00.

Persons interested in attending this course may write to: Dr. Clyde Swartzwelder, Department of Microbiology, Louisiana State University School of Medicine, 1542 Tulane Avenue, New Orleans 12, Louisiana.

Human Behavior In Industrial Accidents

Human behavior is responsible for 70 to 80 per cent of industrial accidents, according to a report just published by New York University's Center for Safety Education.

John C. Larson, research associate at the Center and author of the report, says that although much is known about the relationships of safety engineering, diseases, disorders, and physical working conditions to accidents and injuries, "statistics indicate that these factors account for only 20 to 30 per cent of industrial mishaps." He adds that human behavior "aparently accounts for the remainder."

The study, entitled "The Human Element and Industrial Accident Prevention," shows that such factors as personality characteristics, adjustment to a new job, rejection by co-workers, excessive fatigue, low morale, a tendency to be overly critical of the job,

—Continued on page 124

NEWS AND NOTES

—Continued from page 122a

and lack of promotions are high among the causes of accidents.

"Although a physical working environment contributes to accidents," the NYU safety researcher explains, "the social and psychological climate does so to an even greater degree. Financial considerations are more tangible than prestige, but responsibility, promotion possibilities, and other factors of morale and job satisfaction tend to assume greater importance in the minds of workers."

The NYU Center's report contains summaries and interpretations of more than 200 studies which were screened from 500 abstracts of research projects. Much of the material originally appeared in safety studies in medical, psychiatric, ophthalmological, optometric, psychophysical, psychological, and sociological journals, texts, and periodicals.

The safety study contains sections on hiring procedures, orientation, training supervisors and foremen, training workers, morale, job satisfaction, and predicting accidents. It also includes a critique of industrial accident research, an extensive bibliography, four appendices, and a glossary of technical terms.

Prepared by Mr. Larson with the assistance of four other researchers at the NYU Center, the study is intended as a guide and reference work for safety engineers, personnel directors, researchers, training directors, industrial psychologists, safety supervisors,

college and university instructors, and industrial physicians.

Further information about the report may be obtained from the Center for Safety Education, Division of General Education, New York University, 6 Washington Square North, New York 3, New York.

Chest Physicians to Hold Annual Meeting

The 21st Annual Meeting of the American College of Chest Physicians will be held at the Ambassador Hotel, Atlantic City, New Jersey, June 1 through 5, 1955. The scientific program will include approximately 200 speakers representing specialists in all aspects of diseases of the heart and lungs. In addition to formal presentations, the program comprises a number of symposia, round table luncheon discussions, diagnostic-treatment conference and motion pictures. More than the usual amount of time has been allotted for open discussion.

A new feature this year will be the Fireside Conferences, to be presented on Friday evening, June 3. At this session more than thirty experts will be present to lead the discussions on as many subjects of current interest in the specialty of diseases of the chest.

Fellowship examinations will be held on June 2, and on Saturday evening, June 4, more than 100 physicians will receive their Fellowship certificates at the annual Convocation which will precede the Presidents' Banquet.

All interested physicians are cordially invited to attend the 21st Annual

—Continued on page 128a

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sustained, uninterrupted anticholinergic activity in PEPTIC ULCER, HYPERSECRETION, SPASTIC CONDITIONS OF THE G.I. TRACT

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PRYDON* 0.4 mg. & 0.8 mg. belladonna alkaloids
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—Continued from page 125a

Meeting of the College; there is no registration fee. Copies of the program may be obtained by writing to the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

Soft Drinks Used to Aid Heart X-rays

An ordinary carbonated soft drink can be used as an important aid to x-ray diagnosis of heart trouble.

Drs. Elliot Corday, Beverly Hills, Calif., and Milton Elkin, New York City, said they used carbonated beverages in testing for possible heart enlargement in diseases present at birth or resulting from rheumatic fever, high blood pressure, or "hardening of the arteries."

They said in a recent issue of the *Journal of the American Medical Association* that downward heart enlargement often is hidden in x-ray studies by the dense shadow of the stomach. A large air or gas bubble in the stomach eliminates the shadow and makes the heart's area visible. They found that having the patient drink ordinary carbonated drinks such as soda water or ginger ale before x-ray was better for producing a stomach bubble than a previously used powder which had a strong laxative effect.

The physicians gave soft drinks to 210 patients before making x-ray and fluoroscopic examinations. Of these, 98

—Continued on page 134a

'For many years the natives of the Dutch Indies have used the squeezed juice of the Curcuma in the treatment of diseases of the liver'

Gallogen

Gallogen (gal-o-jen) is the Massengill name for the synthesized active principle of the ancient drug Curcuma. The isolation and synthesis of the active principle permits the administration of a pure, standardized form of the drug. Gallogen is a true choleretic, not a bile salt.

Gallogen acts directly on the hepatic cells. It stimulates the flow of bile which is whole in volume and composition. The choleresis is in proportion to the functional capacity of the liver and is prompt and lasting.

Gallogen is indicated whenever it is desirable to increase the flow of bile, encourage activity of the gallbladder and promote normal function of the biliary system.

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You can't stand over him with a spoon, but you can "outfox" him with a taste—and that's Sustinex.

Sustinex owes its success not only to its potent B complex content—but to its distinctive cola-flavor—it's that delicious taste which keeps them taking Sustinex day-in-and-day-out.

Sustinex does its job by keeping the patient on his prescribed dietary regimen, thus together they build up his nutritional state.

It's delicious taken direct from the spoon. Samples on request to prove it.

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Thiamine Hydrochloride	36 mg.
Riboflavin (as Riboflavin-5' Phosphate Sodium)	12 mg.
Niacinamide	180 mg.
Calcium Pantothenate (as Panthenol)	[illegible]
Pyridoxine Hydrochloride	6 mg.
Vitamin B_{12}	30 mcg.

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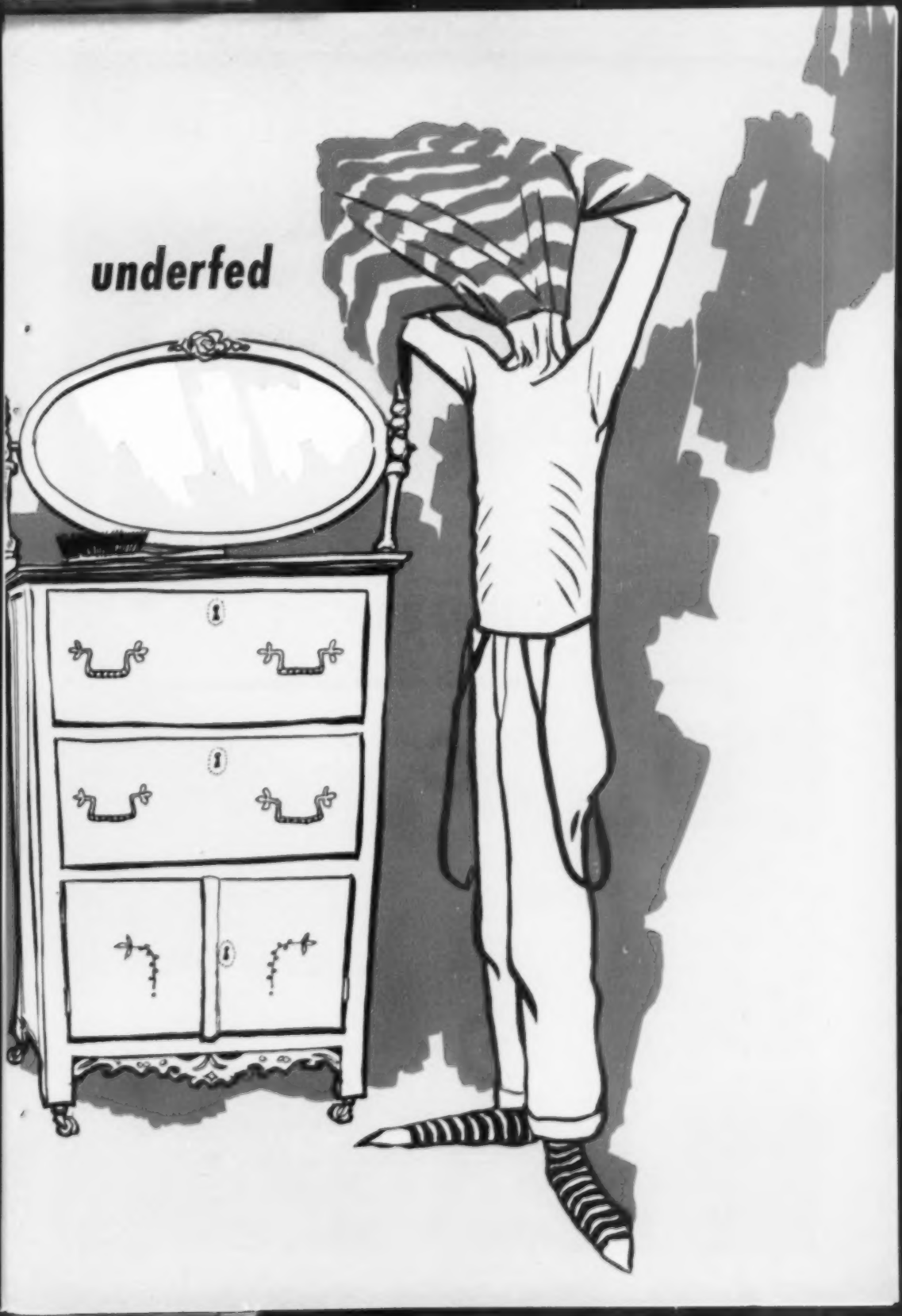
underfed

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had normal hearts and 112 had some form of heart disease. They found that the heart area seen after drinking carbonated beverages was 46 per cent larger than that visible on routine x-rays. As much as 32 per cent of the front of the heart was invisible without the soft drink stomach bubble. The stomach bubble not only revealed the size of the heart, which had been mistakenly estimated before, but also its true shape.

The physicians said nearly all of the cases in which enlargement was found were due to high blood pressure or arteriosclerosis, also known as "hardening of the arteries."

New Theory May Open Way For Tissue Transplants

New evidence about the way the body reacts to disease organisms might pave the way for successful transplants of skin and even other tissues.

Two Minneapolis physicians said today that previous approaches to the problem of transplanting skin or organs have given "little hope for the surgeon dreaming of ultimate organ transplantation." Their theory that the body's reaction to germs prevents transplants may result in discovery of more successful transplanting methods, they said.

Drs. Robert A. Good and Richard L. Varco reported in a recent issue of the *Journal of the American Medical Association* that they succeeded in trans-

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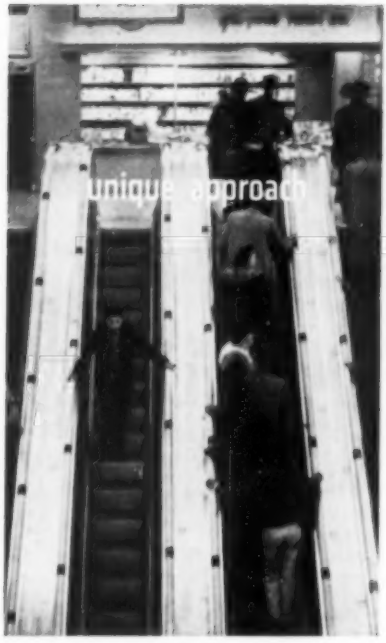

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Each teaspoonful (5 cc.) contains:
phenobarbital . . . . . 8 mg.
homatropine methylbromide . . 0.5 mg.
in a pH adjusted phosphorated carbohydrate solution
alcohol, 9.5%

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—Continued from page 134a

planting skin on the leg of a patient with agammaglobulinemia. Persons with this disease have a virtually complete "immunologic paralysis"—that is, their systems do not build up normal defenses against disease and infections.

The physicians said a transplant of skin from their patient to a normal child who had been badly burned was a failure. They said this was not surprising; transplants of skin almost always are destroyed or replaced by the growing of new skin. Except for a few questionable instances, skin transplants have been successful only between identical twins and among experimental animals. However, transplants from an unrelated normal person to the agammaglobulinemia patient "took" successfully and after 13 weeks could hardly be distinguished from the patient's own skin. It was still intact 11 months later.

They said the only difference between this patient and normal persons was his inability to build up immunity to disease or infection. They concluded that this inability was the reason the skin transplant succeeded while others failed. Animal experiments have provided evidence that supports their theory, they said.

"A substantial obstacle to current medical and surgical progress is the established fact that tissues and organs from one person transplanted to another will not survive," they said. Recent investigations on transplants have

—Continued on page 138a

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—Continued from page 136a

been based on the theory that failure is due to skin "groups" which, like blood groups, may be opposed to each other and resist blending. However, the physicians said, the complexity of this approach "might be overwhelming," and gives little hope for the possibility of eventual organ transplantation.

The Minneapolis physicians said a "more fruitful approach" to the problem might be to concentrate on the search for a way to control the body's production of antibodies against disease. While this mechanism has been suspected as a factor in transplant failure, proof has been lacking. They said their successful skin graft is "strong evidence" in favor of the theory, which might eventually lead to "universal" transplantations of skin and even other tissues.

Medicine Alone May Not Conquer Syphilis

Medicine has almost won the battle against syphilis but medicine alone cannot completely finish the job.

What is needed is discovery and treatment of unknown cases and prevention of new infections, physicians report.

A review of more than 250 publications on the disease last year indicates that although "great strides have been made in venereal disease control, com-

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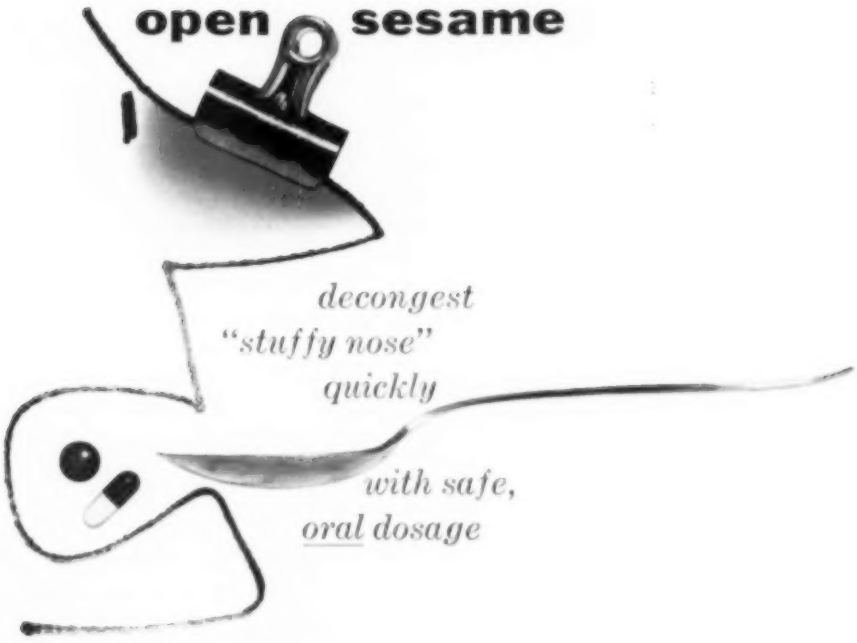

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DIVISION OF ALLIED LABORATORIES
INDIANAPOLIS, INDIANA

NEWS AND NOTES

—Continued from page 138a

plete control is far from being accomplished."

The review appeared in a recent issue of *Archives of Internal Medicine*. It was written by Drs. Herman Beerman, Ira L. Schamberg, Leslie Nicholas, Philadelphia, and Lawrence Katzenstein, Wilmington, Delaware, with the help of Drs. T. Guthe and C. J. Hackett, Geneva, Switzerland.

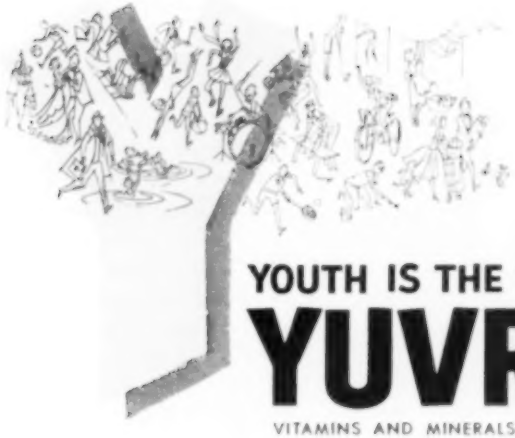
They said penicillin, sometimes in only one-shot form, has made treatment of some forms of syphilis easier and more effective. But the review said the sharp decline of reported syphilis since the development of penicillin may not be "real" or lasting.

It has been estimated that some 2,000,000 untreated cases of syphilis are going unnoticed. Reported syphilis may show a decline simply because many cases are not known by health officials. What is worse is that early latent syphilis seems to be slipping undetected into the second, more serious stage.

It's no longer really a medical problem, some physicians feel. Public education and cooperation helped make possible the successful use of new scientific discoveries. Now the "potential and actual" comeback of syphilis suggests "a critical need" for re-education in control and prevention.

Control depends on early diagnosis and treatment. The death rate "for the next few decades will depend largely on the discovery and treatment" of thousands still at large in symptom-free stages. Tracing immediate contacts is not enough. Close relatives of congeni-

—Continued on page 142a



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For the big and important age group between pediatrics and geriatrics, Lederle offers YUVRAL Capsules, a new diet supplement. A highly potent formula including 11 vitamins, 13 minerals, and Purified Intrinsic Factor Concentrate—all in a dry-filled, soft-gelatin capsule with no unpleasant aftertaste.

Among adolescents and young adults, there are many "nutritionally starved" persons: those with strong dislikes for certain foods, those who won't drink milk, young women on self-prescribed diets. Just one YUVRAL Capsule daily assures them of an adequate supply of essential vitamins and minerals.

Each capsule contains:	
Vitamin A	5000 U.S.P. Units
Vitamin D	500 U.S.P. Units
Vitamin B_{12}	1 mcgm.
Thiamine Mononitrate (B_1)	3 mg.
Riboflavin (B_2)	3 mg.
Niacinamide	20 mg.
Folic Acid	0.2 mg.
Pyridoxine HCl (B_6)	0.5 mg.
Ca Pantothenate	1 mg.
Ascorbic Acid (C)	50 mg.
Vitamin E (as tocopheryl acetate)	5 I.U.
Iron (as $FeSO_4$)	15 mg.
Iodine (as KI)	0.15 mg.
Boron (as $Na_2B_4O_7 \cdot 10H_2O$)	0.1 mg.
Copper (as CuO)	1 mg.
Fluorine (as CaF$_2$)	0.1 mg.
Purified Intrinsic Factor Concentrate	0.5 mg.
Magnesium (as MgO)	1 mg.
Manganese (as MnO)	1 mg.
Potassium (as K_2SO_4)	5 mg.
Zinc (as ZnO)	0.5 mg.
Calcium (as $CaHPO_4$)	69 mg.
Phosphorus (as $CaHPO_4$)	53.8 mg.
Dibasic Calcium Phosphate	236 mg.
Molybdenum (as $Na_2MoO_4 \cdot 2H_2O$)	0.2 mg.

*Pat. 2,5[illegible],[illegible]

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY Pearl River, New York

Lederle

—Continued from page 140a

tal cases must be examined as well as spouses and children of all persons with positive blood tests.

Prevention is largely a matter of controlling promiscuity. If the program is to work, "efforts must be directed toward motivating and modifying human sexual behavior to socially and ethically accepted standards."

The long-term outlook "does not justify any relaxation of vigilance or abandonment of special efforts against syphilis," the review stated. It suggested that "every public-health-minded citizen" should think about the problem of venereal disease control funds, which may be cut because the problem seems to be in hand. The American Venereal Disease Association, the Association of State and Territorial Health Officers, and the American Social Hygiene Association have urged maintaining a $10,000,000 Federal budget for venereal disease control. They said present allocations are inadequate.

Another problem is international control of the venereal disease spread. The World Health Organization and the United Nations International Children's Emergency Fund in Yaws Control are leading world agencies working in venereal disease control, and the problem is "of international importance" because of increasing amounts of international travel. Mass treatment may sharply cut incidence, but each government must be responsible for its

—Continued on page 144a

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1. Balfour, D. C., Jr.: Am. J. Gastroenterol. 22:181, 1954. 2. Burke, J. O., et al.: Internat. Rec. Med. & Gen. Practice Clin. 167:587, 1954. 3. Sternberg, S. D., and Greenblatt, I. J.: Ann. Allergy 9:199, 1951.

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Please send to me, without charge, four 4-oz. tins of MULL-SOY Powdered.

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—Continued from 142a

own problem. Meanwhile, vigilance at the ports must be continued to protect against spread from "vast reservoirs of infection overseas."

Syphilis is one of the most complicated diseases known to man, the review noted. It can affect children born to infected parents, and can result in blindness, heart disease, and insanity, among other things. While the decline in the reported incidence has been "one of the most dramatic episodes" in modern epidemic control work, the problems of the future are prevention of infection, control of spread, and discovery of untreated cases to prevent the "catastrophic effects" of late stages.

50-Year Survey Shows Advances in Medical Education

By 1960, the nation's medical schools should be graduating from 7,300 to 7,500 physicians each year, a report showed today.

Dr. Edward L. Turner, secretary of the Council on Medical Education and Hospitals of the American Medical Association, made the estimate in a recent issue of *Journal of the A. M. A.* He based the prediction on projections of admissions and graduates of approved medical schools and of new schools being developed.

In the past 54 years the nation's population doubled while approved medical school graduations increased 114.6 per cent. Enrollment in medical schools increased from 12,530 to 28,227; graduates increased from 3,165 to 6,361.

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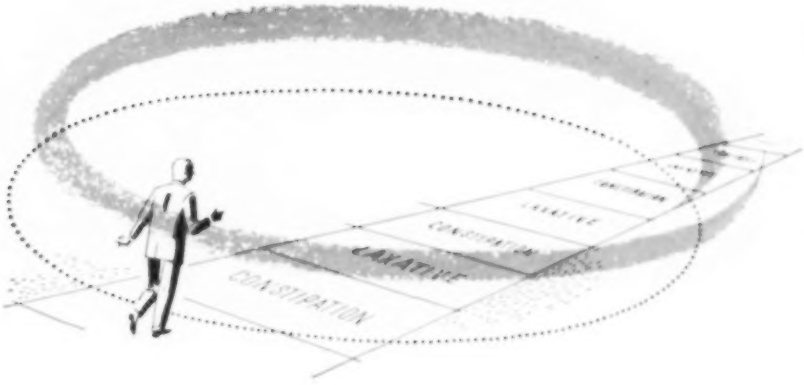

Who Wants To Keep On Taking Laxatives?

THERE IS CONCERN about the needlessly frequent use of laxatives. But, like the observation of Mark Twain on complaints about the weather, nothing tangible is being done about it.

Something is being done about it—when phenolphthalein is the laxative. There is no need for too frequent administration, because phenolphthalein does not cause the secondary constipation that usually follows the use of a cathartic. It does not send the patient on the intermittent path of a laxative today, followed by constipation the next day, then a laxative again, on and on.

By partial elimination of phenolphthalein over several days, a gentle, gradually decreasing peristaltic stimulation is maintained.[1] This continued "tonic" influence enables the colon to return to its usual functioning efficiency.

Reporting on the results of a recent study,[2] the authors conclude that "Prolonged use of phenolphthalein in constipated children produced a tendency toward a normal number of stools daily. Nonconstipated children did not become constipated after the prolonged use of phenolphthalein. There is reason to believe that phenolphthalein exerts a 'tonic' influence and does not produce dependence on its use."

The laxative efficiency of the phenolphthalein used in Ex-Lax is controlled by biological standardization. In keeping with the concept of palatability in medication, the chocolated base imparts an unusually pleasant taste to Ex-Lax. A trial supply of Ex-Lax, reprint of the report in reference, and a Physician's Pocket Notebook, bound in leather and stamped in gold, making medical reference information readily available, gladly sent to physicians.

EX-LAX, INC., BROOKLYN 17, NEW YORK

1. A. Goodman: Pharmacology and Therapeutics. Lea & Febiger, 1954, page 491.
2. S. Dutkowski and F. Steigmann: J. Pediat. 45:169, August, 1954.

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NEMBUTAL® *to relax inner tensions*

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Abbott

NEWS AND NOTES

—Continued from page 148a

Two common misconceptions about medical schools were contradicted by Dr. Turner from facts in a study of the past 50 years. He said that while there were more medical schools and more graduates in 1900 than at present, one fact should be remembered: many of the turn-of-the-century medical schools were "little more than diploma mills." Only about a third of them could offer education that met acceptable standards for medical practice.

In 1910, however, an analysis of schools "revolutionized" medical education. Since then major medical groups have worked together in "developing and maintaining the highest possible standards of medical education in the United States in the interests of the American public," he said.

"Contrary to a common misconception, these organizations have not endeavored to control the number of physicians graduated by the schools," he said. "They have advised against medical schools undertaking to admit more students than their faculties or facilities could possibly justify, if they were to be properly educated."

Dr. Turner explained the confusion which "gave rise to wild distortions . . . that only one applicant out of ten or more could possibly get into a medical school."

Actually, in 1953-54, one out of every 1.97 applicants was admitted to an approved medical school. The confusion came from the fact that there were only 14,678 premedical students applying for admission—but they filed 48,556 applications. In other words, every student

—Continued on page 152a

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Literature? write
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1. Hyman, S., and Rosenblum, S. H.: Illinois M. J. 104:257, 1953.
2. Piper, C. E., and Nicklas, F. W.: Indust. Med. 23:510, 1954

*U.S. Pat. 2,628,185

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*TRADE-MARK

—Continued from page 148a

seeking to get into medical school applied to an average of 3.3 schools.

The 50-year study showed that "approved medical schools have increased their production of physicians through increased student enrollment as their finances, facilities, and faculty personnel have made such expansion possible," Dr. Turner said. "It is hoped, however, that none of them will endeavor to enroll more students than they can effectively educate into well-qualified young physicians."

Five more schools now are being developed. The University of California at Los Angeles will be the first to graduate a class, in June, 1955. The others are the University of Miami, Albert Einstein College of Medicine, in New York City, Seton Hall College of Medicine, in Jersey City, N. J., and the University of Florida in Gainesville. The medical schools of the Universities of Mississippi, Missouri, and West Virginia are expanding from two-year to four-year schools. All eight of these will be graduating physicians by 1960, so there should be 7,300 to 7,500 physicians produced annually from approved schools by that time. This does not include those who would be added by the development of new schools now being considered.

Children Can Inhale Substances Which Cause Skin Disease

Inhaling such substances as house dust and ragweed pollen can cause skin disease as well as asthma in some children, a Philadelphia physician said today.

—Continued on page 156a

in dermatologic conditions . . .

two new and potent corticoid preparations

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Ointment - Lotion

Condition after one week using 0.2 per cent Florinef Ointment on the left leg and 0.2 per cent hydrocortisone ointment on the right leg.

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SQUIBB A NAME YOU CAN TRUST

—Continued from page 152a

Dr. Louis Tuft, Temple University School of Medicine, reported on "inhaled" allergens in a recent issue of *American Journal of Diseases of Children.*

He said for many years allergic eczema, a form of skin disease, was treated like other "eczemas" and was blamed on allergy-producing foods such as milk, wheat and eggs. He said that food can cause this kind of skin disease but that it often results from simply inhaling allergens, notably ragweed. Frequently both skin disease and asthma are caused by the same substance.

Chief causes of the disease are house dust, plant pollens, wool, silk, tiny scales from animal hair or feathers, insecticides, and atmospheric molds (particularly in the Midwestern, or grain, areas of the country). Children may get allergic eczema from rabbits, cats, horses, and dogs. While some cases may be treated by desensitizing injections like those used in asthma, the usual treatment is to remove the cause.

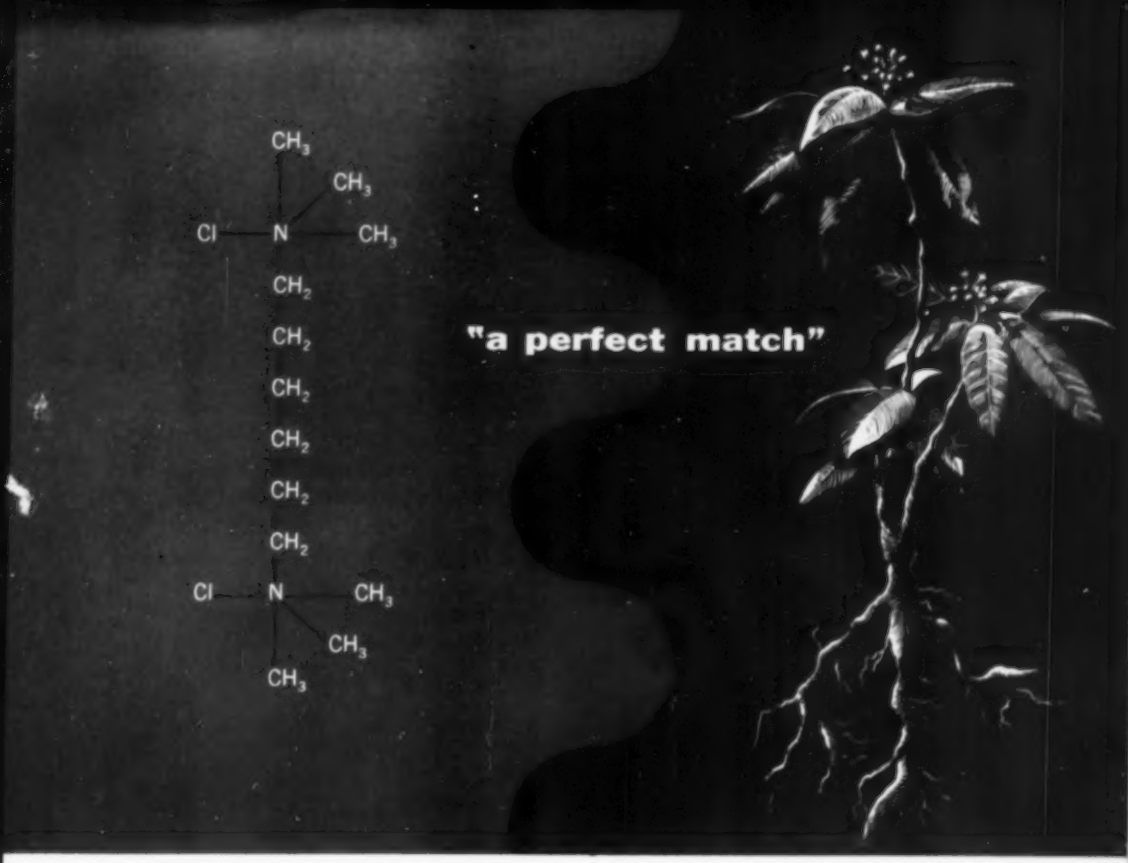
Dr. Tuft noted that it is even possible children may be allergic to dander in the scalps of their parents—but this has never been proved. Until it is, he said, "one must withhold judgment," but it does no harm to take precautions."

Medicine 1954

This comprehensive title heads an article, condensed from the book—*Medical Progress, 1955*—which has been edited by Morris Fishbein: it appears in *Postgraduate Medicine* [17:93 (1955)]. It is not surprising that new therapeutic agents and improvements in some drugs already in use are prominently featured. Chlorpromazine hydrochloride, known also as Thorazine and Largactil, effects nerves, blood vessels and muscles. It produces sedation without hypnosis, relaxation of muscles, and a lowering of body temperature. It controls the anxiety and agitation that occur in mental disorders: nausea and vomiting have been beneficially treated: the action of pain-inhibiting and anesthetic drugs is enhanced, and the adverse reaction between alcohol and Antabuse has been prevented by its use.

Diamox, a carbonic anhydrase is being used in congestive heart failure and in emphysema, and has been tried in cases of epilepsy, disturbed renal function and some gastric conditions.

—Concluded on page 156a



in the management of hypertension

The potent autonomic ganglionic blocking action of Methium has now been augmented by the mild hypotensive and sedative properties of reserpine. A true synergistic combination, Methium with Reserpine produces "better hemodynamic stability than when either one is used alone."[1] In one series, a greater number of patients obtained adequate blood pressure reduction than from any single drug or combination of drugs previously reported.[1]

As blood pressure is reduced – and even without reduction – hypertension symptoms such as headache, retinopathy and palpitation have been alleviated.[2] Of special significance, a satisfactory response has been achieved with less than half the usual dosage requirements for Methium.[2] As a result, "the occurrence and intensity of physiologic side effects were markedly reduced and were minimal and of benign nature."[2]

Because of the potency of Methium, careful use is, nevertheless, required. Precautions are indicated in the presence of renal, cardiac or cerebral arterial insufficiency. Markedly impaired renal function is usually a contraindication.

Supplied:

Methium 125 with Reserpine – scored tablets containing 125 mg. of Methium and 0.125 mg. of reserpine.

Methium 250 with Reserpine – scored tablets containing 250 mg. of Methium and 0.125 mg. of reserpine.

1. Ford, R. V., and Moyer, J. H.: Am. Heart J. 46:754 (Nov.) 1953.

2. Crawley, C. J., *et al.*: New York State J. Med. 54:2205 (Aug. 1) 1954.

Methium® with Reserpine

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(BRAND OF HEXAMETHONIUM CHLORIDE)

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NEWS AND NOTES

—Concluded from page 154a

The effects of D-lysergic acid diethylamide, chemically related to ergot, have been studied in connection with research on psychiatric patients. The enzymes, already in wide use, are being further investigated, as are the antibiotics. With the exception of the viruses causing parrot fever, trachoma and lymphogranuloma, little progress has resulted from the use of antibiotics against viruses. Intensive studies with several antibiotics as well as other drugs have produced excellent results in the handling of brucellosis. Puromycin is reported as effective against amebiasis. Mycostatin has been found to inhibit or kill all species of fungi and yeasts tested. Among the vitamins, pyridoxine or B_6, once thought to be of little significance, is now believed to be essential in the diet. A number of persons with acne were given large amounts of vitamin C in addition to routine treatment with marked improvement.

Studies in connection with rheumatic fever included treating cases of sore throat in children with a 200,000-unit tablet of Bicillin daily; results of this therapy were gratifying. In another series of investigations, 300,000 units of penicillin were given daily to children for seven days of each month of the school year; the recurrence rate of rheumatic fever was very dramatically lowered. Much attention, also, has been focused upon poliomyelitis and the development of a safe vaccine at reasonable cost.

PSORIASIS in children

RIASOL

Case Report: M.S., a girl aged 8, was covered from head to foot with psoriasis scales. Except for her face, there was not a spot on her body that was free from the disease. It began at the age of 7.

Her classmates passed the word around that she had leprosy and shunned her. As a result, the child failed at school and developed neurotic symptoms.

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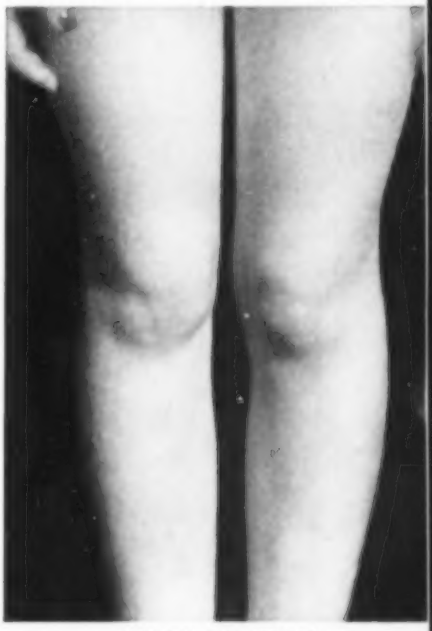

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MEDICAL TIMES, APRIL, 1955

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References: 1. South. M. J. 31:233 (March) 1938. 2. Bull. New York Acad. Med. 19:478 (July) 1943. 3. Am. Heart J. 18:425 (Oct.) 1939. 4. Minnesota Med. 33:1102 (Nov.) 1950.